



2008 - 2009
ANNUAL REPORT

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Vision The Leopold Center for Sustainable Agriculture explores and cultivates alternatives that secure healthier people and landscapes in Iowa and the nation.

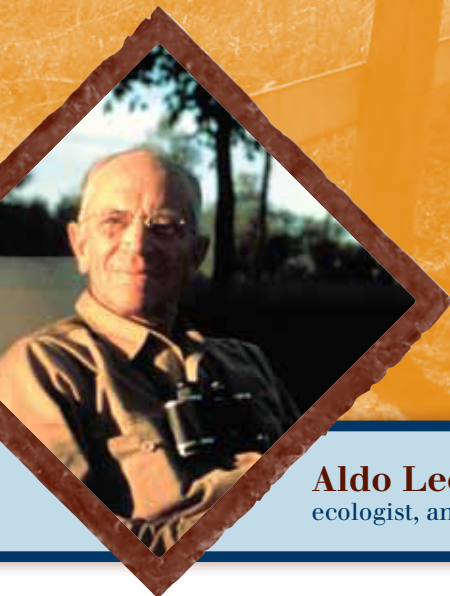
Mission The Leopold Center was established by the Iowa Legislature as part of the Iowa Groundwater Protection Act of 1987. Its legislatively mandated goals are to identify and reduce negative environmental and socio-economic impacts of agricultural practices, contribute to the development of profitable farming systems that conserve natural resources, and cooperate with Iowa State University Extension to inform the public of new findings.

Information for this report was compiled by Leopold Center staff with the help of its researchers and educators, who are committed to improving Iowa agriculture and the lives of Iowans.

Edited by Mary Adams Design by judesign inc., ankeny, ia

All hand photos by Jerry DeWitt unless otherwise specified. All other photos by Leopold Center Staff unless otherwise specified.

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Aldo Leopold (1887-1948), the conservationist, ecologist, and educator for whom the Center was named.



NEIGHBORS

Farmers prize their independence, but also recognize the importance of being neighborly. It doesn't matter whether the neighbor (according to the dictionary) is "one living or located near" or someone they connect with via the Internet. Being a good neighbor can mean sharing tools or equipment or information, and good neighbors lend a hand when help is needed. Being a good neighbor in Iowa also involves being a good steward of the land, water, and other natural resources that we share.

The Leopold Center works to be a good neighbor to the Iowans we serve. Many of the Center's projects and programs rely on the willingness of farmers, researchers, urban dwellers, and policy makers to act together (as do good neighbors) to sustain Iowa's bountiful heritage for another generation.

The Center's Marketing and Food Systems Initiative has spawned several working groups (or "communities of practice") which show the gains that can be made when producers, marketers, and consumers band together to support niche pork markets, fruit and vegetable growing or small scale meat processing. The Regional Food Systems Working Group brings together local food supporters in all corners of the state—neighbors united in their quest to make local food more accessible and affordable for their neighbors.

New England poet Robert Frost famously wrote that "Good fences make good neighbors." The neighbors of the farmers who have pastured livestock and dairy production operations would probably agree. But we can still acknowledge the many benefits of the years of managed grazing research sponsored by the Ecology Initiative, and the efforts of the new Grass Based Livestock Working Group to make sure that there is a place on the agricultural landscape for grasses, prairie plants, pastures, and animals to thrive. (And one anonymous wit pointed out that "the fence that makes good neighbors needs a gate to make good friends.")

"When strangers start acting like neighbors... communities are reinvigorated," according to activist Ralph Nader. The Leopold Center's fall 2008 workshop on the floods of 2008 brought together more than 100 Iowans who had been affected by the summer's extreme weather events. They shared an amazing array of ideas about ways to stem the tides, things that had worked for them that might help other communities, and a long list of potential steps that local, county and city governments could take to make Iowa communities more secure from future floods.



*"Good fences
make good
neighbors."*

"The impersonal hand of government can never replace the helping hand of a neighbor," in the view of Minnesota's Hubert H. Humphrey. That's why the Leopold Center has encouraged farmers struggling with fallout from the economic downturn to look at a variety of agricultural alternatives that might make their operation more profitable and more sustainable. It might be attending a Center sponsored demonstration of some new practices organized by Practical Farmers of Iowa, or converting to an organic crop using information collected by Kathleen Delate's organic program, or forming a neighborhood group to share machinery and labor with guidance from Leopold Center funded research.

Aldo Leopold, the Center's touchstone philosopher, taught us plenty about being good neighbors to the land and its inhabitants, and by extension to each other as integral parts of the larger community. The Leopold Center's work for Iowans continues to be guided by his admonition to "preserve the integrity, stability and beauty of the biotic community." What could be more neighborly?

Mary Adams
Editor

Jerry DeWitt, Leopold Center director, was presented with the Distinguished Achievement in Agriculture Award by the Iowa chapter of Gamma Sigma Delta, the Honor Society of Agriculture on April 9.

DIRECTOR'S MESSAGE

Over the last 37 years as an adopted “Iowa native” pursuing my ISU Extension work and later as Director for the Leopold Center, I have driven literally thousands of miles across all of Iowa into every county and have left my footprints on many farms. I have taken much with me as I left each farm and my life has changed. I have touched the soil, been inspired by the fabric of the landscape and have been nourished by the sounds and the richness of the deep roots of Iowa agriculture and its people. Each farm, each family has given me the gifts of knowledge, appreciation and friendship. To me, each farm family has been like a neighbor and their home place and landscape have left an indelible impression on me. And I am grateful.

But, all of us with rural roots know that over time our neighbors change, farms evolve, and new visions and opportunities come to the land and our neighbors. Things change. And this is all normal, good and healthy.

We at the Leopold Center have a passionate history of helping create positive change for our Iowa neighbors, their land and dreams for more than 22 years. This annual report showcases the practical findings and activities of the Leopold Center and

illustrates our commitment to serve Iowa, its agriculture and people. We view our work and investments (funded research and projects, workshops, papers, seminars, tools and support) as perhaps just good “neighboring” being there when we are really needed. This is just like how we helped put up hay, walked beans, and shelled corn in earlier years as we lived on our farms. When our neighbors called, we were there.

The Leopold Center today strives to be there as we are called to meet the changing needs of Iowa agriculture and communities. What drives us and keeps us at this table of agriculture, however, is our deep commitment to our land and water, resources continually challenged in today’s agriculture. Our work today points back to our legacy of protecting our precious natural resources soil and water. That is hopefully what we are known for by our neighbors and the citizens of Iowa. As you read this report, you’ll see the richness of our work, the diversity of our activities, and our passion for bringing science and new knowledge to help realize the dreams of many across Iowa.

We, at the Center, look forward to hearing your voices and ideas as we move toward greater sustainability for Iowa agriculture, its people and places. This report is just one



Jerry DeWitt



of several ways that we can be a neighbor to you and keep in touch with you. You can call on us for additional information and support at our homepage www.leopold.iastate.edu or join us on Facebook at www.facebook.com. (Look for Leopold Center for Sustainable Agriculture.)

Most importantly, please call us, contact us and let us know your needs and concerns. Tell us how we can be an even better neighbor to you this year and in the future. We promise that we will listen to you.

Though the home place remains forever on the landscape in place and memory, neighbors change, and that is the case with me. After 37 years of being a neighbor in Iowa through my work in Extension and at the Leopold Center at Iowa State University, I am moving on to other opportunities, places, and facets in my life. I will leave the Leopold Center in 2010 to become a new neighbor to others. The leadership will be transferred to your new neighbor, the next Director of the Leopold Center.

As I go, I take with me the incredible gifts of friendship, support and warmth of many who were my Iowa neighbors for all these years. I cannot ever begin to repay all the neighboring they have given to me. I can only humbly say thank you from the bottom of my heart for the honor to have served you and have been your neighbor.

Jerry DeWitt
Director

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** board members who served only a portion of the fiscal year*



CENTER BEGINS DIRECTOR SEARCH

In early 2009, Jerry DeWitt announced his intention to retire as director of the Leopold Center at the end of January 2010. His decision set into motion the process of seeking and selecting the Leopold Center's fourth director. The job is an Iowa State University faculty position, so the final hiring decision is made by ISU President Gregory Geoffroy from a list of up to three candidates submitted by the Leopold Center advisory board.

A search committee was appointed by ISU Executive Vice President Elizabeth Hoffman in February. The committee prepared a detailed job description and the position was widely advertised in scientific and professional circles. Prospective applicants were to demonstrate commitment to a holistic view of agricultural problem solving, possess a distinguished research record, be qualified for tenure in the ISU College of Agriculture and Life Sciences, and exhibit success in obtaining outside funding. Applications were due July 1 with interviews to follow in September and October and a final selection to be made late in the fall.

Five Leopold Center advisory board members were part of the director search committee: Laura Jackson, Jim Penney, Maury Wills, Aaron Heley Lehman, and Maynard Hogberg, who served as committee chair. Iowa State University appointed five representatives to the committee: Andy Baumert, State Relations Officer; Matt Liebman, Henry A. Wallace Endowed Chair for Sustainable Agriculture; Tom Isenhardt, Natural Resource Ecology and Management; and Paul Brown, Agriculture and Natural Resources Extension. Rich Pirog of the Center staff also served on the committee.



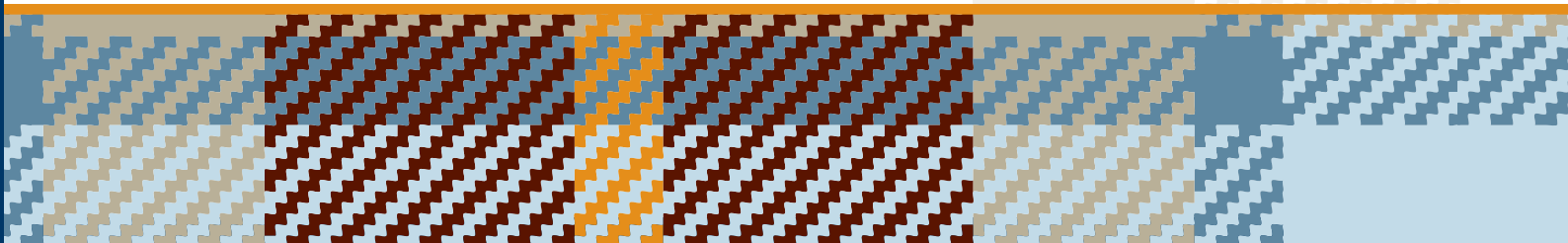
A book from the Agriculture of the Middle (AOTM) project, *Food and the Mid-Level Farm: Renewing the Agriculture of the Middle*, has been published by the MIT Press. The volume contains contributions from Fred Kirschenmann and Rich Pirog.

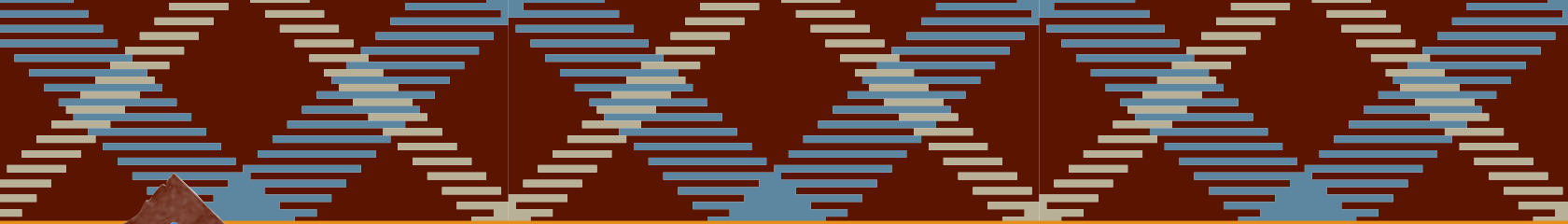


The Center's quarterly newsletter, the *Leopold Letter*, received a bronze award at the Association for Communication Excellence annual meeting in June. The award was presented to newsletter editor Laura Miller.



Rich Pirog was lead author for a chapter on distribution in the book *Sustainability in the Food Industry* which was published in March 2009 by Wiley-Blackwell. The book is part of the Institute of Food Technologists Series.





Leopold Center for Sustainable Agriculture

FY 09 JULY - JUNE

FINANCES

In fiscal year 2008 2009 revenue for the Leopold Center included \$2.059 million from nitrogen fertilizer and pesticide registration fees collected under rules established by the Iowa Groundwater Protection Act of 1987. This represents an increase of \$256,000 or 14 percent from the previous year. General Revenue Program funds from state appropriations to Iowa State University totaled \$587,663 for the same period. This represents an increase over the previous year of 1.7 percent.

Operational Expenditures

Salaries and Benefits	\$693,367
Travel and Registrations	14,553
Services and Information	80,526
Communications	3,137
Supplies	14,592
Utilities/Maintenance and Repair	<u>1,728</u>

Total Operational Expenditures	<u>\$807,903</u>
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Research and Grants

Competitive and Initiative Grants	\$993,453
Wallace Chair Support	20,000
PFI Partnership	50,000
LTAR Support	50,000
Grape and Wine Program	12,500
Water Quality Project Nashua Farm	10,500
Energy Specialist	10,000
Drake Ag Law Land Stewardship Project	25,000
Graduate Assistantship Support GPSA	<u>20,590</u>

Total Research and Grants	<u>\$1,192,043</u>
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Initiative and Other Commitments

Ecological Systems Research	\$6,719
Marketing and Food Systems Research	44,729
Policy Research	7,757
Other (Discretionary/Cost Share)	<u>4,041</u>

Total Initiative and Other Commitments	<u>\$63,246</u>
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Total	<u><u>\$2,063,192</u></u>
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VISITING FACULTY PROGRAM LAUNCHED

Thanks to an unrestricted estate gift, the Leopold Center hopes to embark on some new education and outreach programs over the next decade. The first program to be implemented will be the Leopold Visiting Faculty Program aimed at bringing professors from other academic institutions to Iowa State for a 9- to 12-month sojourn. The visiting faculty member will examine systems-based approaches to agricultural production that protect and improve the long-term health and resilience of agricultural communities and associated natural systems. He or she will conduct research and extend information and education on sustainable agriculture to Iowans, focusing on a research topic jointly selected with the Center.

The individual selected will have an established, nationally recognized record of accomplishment, a Ph.D. in a field related to sustainable agriculture, a strong scientific background, and demonstrated interest and proficiency in sustainable agriculture. The faculty member will serve in-residence at ISU and be affiliated with an academic department or research unit at ISU. The Center will provide up to 50 percent of yearly salary/benefits stipend and limited operating funds for research and outreach needs. The Center had hoped to launch the program in 2010, but due to budget concerns the effort has been put on hold until financial constraints have eased.



The second annual "Ames Reads Leopold" event was held March 7 at the Ames Public Library. Sixty central Iowans gathered to hear Aldo Leopold's essays read aloud alongside a backdrop of images showing Leopold's family and nature scenes. The Leopold Center was one of the local sponsors, while the Aldo Leopold Foundation is promoting the event nationally.



The Leopold Center's FY2008 annual report, "Water," received the first place award for an annual report in the Publication and Print Awards contest at the National Agricultural Alumni and Development Association (NAADA) Conference.



Center sponsors conferences on two of Iowa's biggest water problems

Hypoxia in the Gulf of Mexico: Implications and Strategies for Iowa, October 16

In 2008, the “dead zone” in the U.S. Gulf of Mexico was about 8,000 square miles, larger than the state of Massachusetts. The continued growth of this dead zone has aroused considerable scientific concern, including a review of the science relevant to the hypoxic conditions in the Gulf by the Environmental Protection Agency’s Science Advisory Board. Publication of that review generated substantial interest and input from the research community at Iowa State and elsewhere.

ISU economics professor Cathy Kling, who served on the EPA Science Advisory Board, approached the Center’s Policy and Ecology Initiatives with the

idea that a forum was needed to keep the hypoxia conversation going. She pointed out that many important research questions remain unanswered and that the research needs often are heavily interdisciplinary and require engagement with a broad array of stakeholders. This sparked the staging of the hypoxia workshop, sponsored by the Leopold Center with support from the Center for Agricultural and Rural Development.

The one day event explored how and what Iowa might do in response to the continuing challenges of hypoxia and other water quality issues. Among the 125 attendees at the meeting were state agency personnel, NGO representatives, watershed councils, extension and research staff from ISU, water policy and regulatory group representatives.

Keynote speaker was Darrell Brown, chief of the U.S. Environmental Protection Agency’s Coastal Management Branch. Brown told the audience about studies showing that 75 percent of the excess nutrients that create the Gulf dead zone flow downstream from five Midwestern states, including Iowa. Stemming that tide is just one goal of the EPA water management efforts.

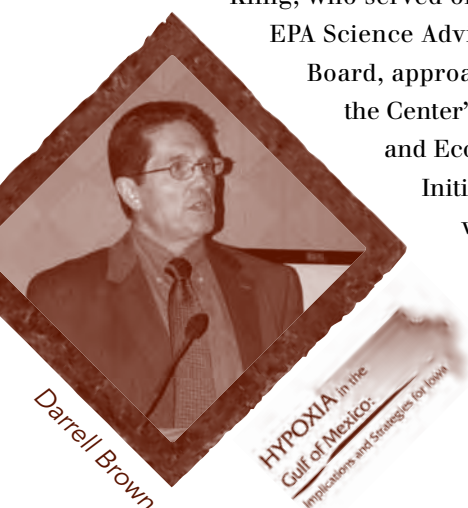
Brown says the EPA also wants to enhance and rejuvenate water resources throughout the Upper Mississippi Basin without harming the local communities and economies.

Other presenters at the workshop reviewed current research on nutrient reduction strategies in Iowa such as improvement of local water quality, watersheds, landscape design, modeling and monitoring, and the implications of increased biofuels production for Iowa’s waterways.

Speaker summaries from the hypoxia workshop are available at: www.card.iastate.edu/hypoxia

Learning from the Floods of 2008: Practical Strategies for Resilience, December 8

Jerry DeWitt couldn’t shake the images he’d photographed of flood ravaged northeastern Iowa. Kamyar Enshayan couldn’t forget the tense days he’d spent watching the Cedar River rise and engulf his hometown of Cedar Falls. The 2008 summer floods that devastated parts of Iowa spurred the two center directors to spearhead a December 8, 2008



workshop on lessons learned and actions needed to avert future disasters.

The Leopold Center joined with the Center for Energy and Environmental Education at the University of Northern Iowa to sponsor a gathering that united the rural and urban sectors to create a shared vision for Iowa's rivers and streams. A parade of speakers including farmers, policy makers, environmental scientists, city officials, and representatives from state agencies and conservation offices offered their assessments and ideas for fixing the current system.

There was agreement on the urgent need for new, more accurate state flood plain maps, better enforcement of restrictions on developments of all types in flood plains, and conservation planning geared to the watershed level (rather than by county or city). Iowa City's mayor and the director of planning and development talked about their experiences trying to communicate quickly and accurately with citizens in a constantly changing flood situation. Another strong appeal was made for increased public education about Iowa's river systems and what the changes (both agricultural and urban) have done to compromise the integrity of those systems.

Among the conference day sound bites:

- “When it comes to natural resources conservation and protection, we can’t always wait for the other person to take action...we have to start doing it ourselves first.” *Richard Sims, Natural Resources Conservation Service*
- Older neighborhoods need attention, too, and *Wayne Peterson, urban conservationist with the Iowa Department of Agriculture and Land Stewardship*, calls it “retrofitting the built world.”
- “It’s kind of a no brainer to put a grassed waterway on your farm where it’s needed, but you have to maintain it.” *Rich Juchems, Butler County farmer*
- “The land I saw that was no till had the least amount of impact from the rain that fell this year.” *Rick Cruise, ISU agronomy*
- “Any changes we make to land use or stream channels, such as channelization, that increase the amount or speed of the water will increase the amount of sediment transported.” *Tom Isenhardt, ISU natural resource ecology and management*
- “I contend that no conservation, no dollars. We should expect that of everyone, urban and rural. New development in urban areas should not get tax abatement. We shouldn’t tolerate them not looking out for our water, flood damage and our environment.” *Mark Ackelson, Iowa Natural Heritage Foundation*

Presentation summaries from the flood workshop can be seen at: www.flood.leopold.iastate.edu/resources



Kirschenmann balances work time between Leopold Center and Stone Barns

Fred Kirschenmann, Leopold Center Distinguished Fellow, split his work year between the Center and the Stone Barns Center for Food and Agriculture in Pocantico Hills, New York, an hour north of New York City. Under a renewable Memorandum of Understanding, the two agricultural centers share the cost of Kirschenmann's salary while both benefit from his expertise and connections. Kirschenmann comments, "I think the key learning for me has been discovering some of the differences and complementarities of sustainable food and agriculture systems in urban and rural settings."

As the Leopold Center's Distinguished Fellow, he is charged to "provide programmatic leadership in sustainable agriculture." He spends a good deal of time exploring the literature showcasing the evolving ideas and findings related to sustainable agriculture. He says, "I have been especially impressed with the way the ideas of resilience and ecological economics are beginning to find their way into the literature on sustainable agriculture. I suspect this is, in part, in response to the awareness that our current agriculture system may not prove very resilient in the face of climate change and

increased energy costs." Kirschenmann continues to receive many invitations to address these issues at agriculture and food related conferences. He also shares relevant findings with the staff at the Leopold Center and the Stone Barns.

At the Stone Barns, Kirschenmann's work is focused in three complimentary areas. 1) Continuing experiments with creative ways to produce food in a sustainable manner, using closed nutrient cycling systems at the Stone Barns animal and horticulture operations. 2) In partnership with the Urban Design Lab at Columbia University and the Manhattan Borough, exploring ways to design viable urban agriculture, using a foodshed concept for the New York City area. 3) Working closely with Dan Barber, chef and owner of the Blue Hill restaurant at the Stone Barns, to continue improving the relationship between ecologically sound food production practices and nutrition, health and taste qualities. Kirschenmann also is involved with an obesity and diabetes task force in partnership with Columbia University and MIT to explore how sustainable food production can help to address those challenging problems.



Leopold Center Distinguished Fellow Fred Kirschenmann received the first ever Medal for Distinguished Leadership in Sustainable Agriculture from the Glynwood Center in Cold Spring, New York.

MIDSIZE FARMERS

The Agriculture of the Middle project continues to work with a number of companies and farm organizations to promote the concept of helping farmers aggregate into marketing networks to produce differentiated value added products for the new markets demanding such products. SYSCO, the Bon Appétit Management Company, and Chipotle are among the companies that have adopted the concept and are using it to work with U.S. farmers.

PUBLIC APPEARANCES

A growing interest in the many sustainable food and agriculture issues being confronted at both the Leopold Center and the Stone Barns results in a constant stream of invitations for Kirschenmann to speak at conferences, trade shows, and forums throughout the country. In the past 12 months, he gave 56 speeches. Among them were presentations at:

- International Association of Culinary Professionals *Denver, Colorado*
- Food Systems Leadership Institute *Burlington, Vermont*
- Owens Conference *Austin College, Sherman, Texas*
- Johns Hopkins Bloomberg School of Public Health *Baltimore, Maryland*
- Wal-Mart Agile Conference on Sustainability *Fayetteville, Arkansas*
- Soil and Water Conservation Society *Oklahoma City, Oklahoma*
- Association of Floriculture Professionals *Frisco, Texas*
- McGovern “Hungry for Green: Feeding the World Sustainably” conference *Mitchell, South Dakota*

- American Corn Growers Association *Coralville, Iowa*
- Appignani Bioethics Center *New York City, New York*
- Bouyoucos Conference on Soil Stewardship *Nebraska City, Nebraska*
- 2009 Bell Lecture *Pennsylvania State University, Brandywine, Pennsylvania*
- Food Industry Center conference *University of Minnesota, Minneapolis, Minnesota*

Kirschenmann also spoke at numerous events in Iowa, including:

- A Mid-Iowa Organizing Strategy (AMOS) conference *Ames*
- Clay County Fair *Spencer*
- Canterbury Forum *Cedar Falls*
- Iowa Chapter of the Sierra Club *Ames*
- Golden Silo Award Keynote *Cedar Falls*



The Executive Committee of the Association of Family Farms (AFF) board has developed a business plan and the board of directors has approved it. (AFF is the business development component of AOTM.) The research arm of AFF has completed a number of case studies of farmer marketing networks so that other farmers can learn from their experiences. Those case studies are available at www.agofthemiddle.org. Larry Yee,

retired Extension specialist from California, is exploring a “Fellows Program” to train Extension personnel and farm organization staff to help interested farmers form marketing networks. The project hopes to raise initial funding to hire a small full time staff to manage the various aspects of the project under the board’s direction.

*Not only has decision-making moved outside the farming sector,
it has conformed to contemporary standards of any corporate
decision-making, that is, quarterly profits.
Richard Levins*

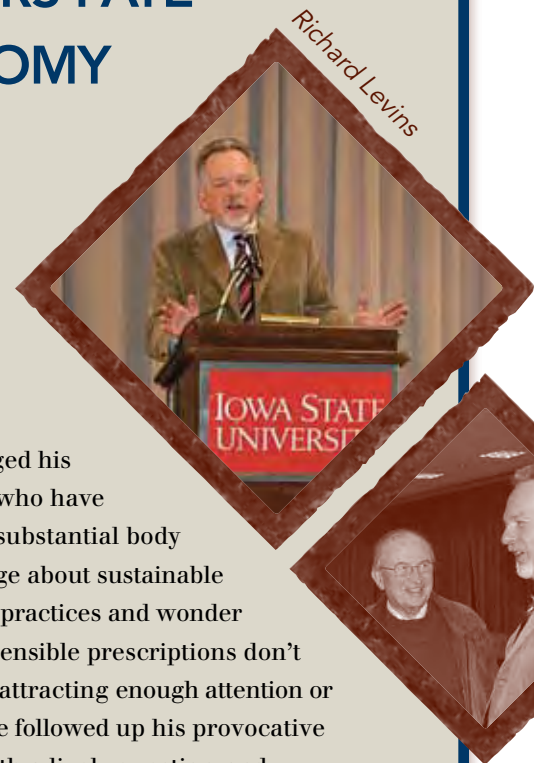
SHIVVERS LECTURER LEVINS PONDERES FATE OF NATION'S AGRICULTURAL ECONOMY

As Americans debate the wisdom of nationalizing and/or propping up a variety of ailing industries, many wonder about the future of our less than robust agricultural system. Richard Levins, professor emeritus of applied economics at the University of Minnesota, pondered those questions in the 2009 Shivvers Memorial Lecture delivered at Iowa State University on March 1. His presentation, “Why Don’t We Have Sustainable Agriculture Now?” focused on “why farmers no longer sit in the driver’s seat of our contemporary food system.”

Levins pointed out that “Not only has decision making moved outside the farming sector, it has conformed to contemporary standards of any corporate decision making, that is, quarterly profits. I am at a complete loss to see how decision makers with a three month planning horizon will somehow stumble on a food system that is sustainable across generations.” In describing the economic environment in which agribusinesses and retailers set the rules for the world where farmers must operate, he pointed out some parallels with the recent U.S. banking crisis.

Levins also acknowledged his colleagues who have amassed a substantial body of knowledge about sustainable agriculture practices and wonder why those sensible prescriptions don’t seem to be attracting enough attention or adoption. He followed up his provocative remarks with a lively question and answer session with an audience of about 250 listeners.

Read (or listen to) his speech on the Center’s web site at www.leopold.iastate.edu/news/pastevents/levins/levins.html



WESTERN IOWA GRAZIER STEVE REINART RECEIVES 2008 SPENCER AWARD

Steven Reinart of Glidden is something of an Iowa Renaissance farmer, mixing seedstock cattle and grass finished organic beef production with conservation achievements and a well developed personal philosophy of holistic farm management and regenerative agriculture. He's not just paying lip service to the regenerative part he's established shelterbelts, wetlands and ponds on his farm that place his operation among those with the highest level of conservation practices under the federal Conservation Security Program.

Reinart has operated his family farm since 1973, and transitioned the entire farm to native and cool season grasses for grazing in 1981. He made the move from conventional practices to organic certification in 2005. His service to western Iowa conservation efforts is of long duration: 19 years on the Carroll County Conservation Board, 25 years with the Carroll County Soil and Water Conservation District, and the creation of Reinart's Bend conservation area along the Raccoon River.

Reinart accepted the Spencer Award for Sustainable Agriculture from former Leopold Center board member Russ Brandes in a ceremony at the January 2009 annual Practical Farmers of Iowa conference.



Steven Reinart

(Left to Right) Russ Brandes,
Steve Reinart,
Laura Jackson and
Jerry DeWitt



Associate Director Rich Pirog negotiated with the National Center for Appropriate Technology (NCAT) to purchase a portion of their new Iowa-based energy specialist's time. When Rich Dana was hired for the new position, Pirog coordinated the details of the Leopold work plan, targeted to help Iowa small and midsize farmers apply for energy-efficiency grants.



The Iowa Forage and Grassland Council commended the Leopold Center for its work in forages and grassland agriculture at a 2008 winter meeting. The Center provided start-up research funds for a CRP demonstration farm in Adams County.

IOWA LEARNING FARM: BUILDING A CULTURE OF CONSERVATION

As Iowans began to recover from the floods of 2008, all manner of experts considered how to lessen the impact of future flooding. Agriculture was not alone in looking for answers, and the Iowa Learning Farm program had some promising ideas to share from producers who saw conservation farming practices put to the test and work.

The five year old Iowa Learning Farm (ILF) program supports farming practices that conserve and improve soil as well as protect water quality. Center director Jerry DeWitt is in his third year of leading the program. By taking a grassroots approach, the program is helping all Iowans to play an active role in keeping Iowa's natural resources healthy. For more information, see www.extension.iastate.edu/ILF/.

Demonstrations

Working closely with 28 farmers across the state, research is being conducted in agronomy, economics, environment and sociology to demonstrate that conservation farming practices are sustainable and profitable. Practices being studied include no tillage, strip tillage, cropping systems, residue and nutrient management. Iowans serve as spokespersons for the program, sharing their conservation experiences at field days, and with local service organizations and youth groups. All the cooperators involved with the program are effective opinion leaders and positive role models who practice, understand and promote commitment to a Culture of Conservation.

The Iowa Learning Farm hosted or sponsored nine field days at farms statewide in summer 2008. The field days featured farmers talking to their neighbors across the road and across the county about the conservation practices that worked on their farms. Strip till was the theme for the ILF exhibit at the 2008 Farm



Center investment helps support

During the past year, the Leopold Center provided \$10,500 to assist three ISU professors conducting a long-term study, “Drainage Water Quality Impacts of Agricultural Management Practices,” at the ISU Northeast Research and Demonstration Farm near Nashua. Matt Helmers and Ramesh Kanwar in the Department of Agricultural and Biosystems Engineering and Antonio Mallarino in the Department of Agronomy are the principal investigators.

The Nashua project is focused on evaluating the impacts of liquid swine manure application, tillage, crop rotation, and cover crops on dissolved nutrient loss in subsurface drainage. The ISU scientists are looking for answers to these questions:

1. Can dissolved nutrient losses be decreased by using a cover crop after both corn and soybeans within a corn/soybean rotation?

Progress Show held in Boone County. Farmers across the Midwest could ask questions and get advice from those already utilizing strip tillage successfully.

The ILF's portable rainfall simulator has traversed the state for three summers at county fairs, watershed group meetings, and youth educational events to demonstrate the potential impacts of rainfall on various land treatments.

Videos

"Building a Culture of Conservation," a series of six videos that focus on water and soil quality, was produced and distributed to all Soil and Water Conservation District (SWCD) offices, county Extension offices and county conservation boards. In addition, two curriculum booklets were published, containing activities that coordinate with each video. These were sent to all Iowa high school and community college agricultural educators.

ILF also is collaborating with other groups to expand the scope of its research and outreach. A federal Conservation Innovation Grant explores residue management and removal. The performance based watershed management project focuses on establishing watershed groups across the state to set agricultural goals that are environmentally sound and economically practical. A cover crop group, created with Practical Farmers of Iowa, centers on farmers who are successfully incorporating cover crops in their crop rotations.

Major ILF partner organizations are the Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Natural Resources Conservation Service, Iowa State University Extension, Conservation Districts of Iowa, Iowa Farm Bureau Federation and the Leopold Center.



ISU drainage water research

2. How are dissolved nutrient losses impacted by liquid swine manure application before both corn and soybeans (soybean N application rate from liquid swine manure at approximately one-half crop removal)?
3. How does tillage or lack of tillage within a corn/soybean system impact dissolved nutrient loss?
4. How does dissolved nutrient loss from a continuous corn system compare to that in a corn/soybean system?
5. Does corn residue removal affect dissolved nutrient loss in a continuous corn system?

During Fall 2008 and Spring 2009, fertilizer and manure were applied to appropriate plots and manure nutrient analysis was performed to ensure that target application

rates were being achieved; cover crop biomass was collected prior to killing the rye cover crop in preparation for corn and soybean planting, quantified, and is being analyzed for total nitrogen uptake; soil samples from 0-6, 6-12, 12-24, and 24-36 inches were collected in late 2008 and are being analyzed for total carbon, soil-test phosphorus by methods supported by ISU (Bray-1, Mehlich-3, and Olsen), pH, and exchangeable cations. Tile drainage water samples were collected to test for nitrate and dissolved-reactive Phosphorus at least once a week during non-freezing conditions.

Preliminary analysis of the results of these treatments implemented in 2007 is underway. The investigators also have begun to disseminate information about this project. A presentation on the findings to date was made at the Northeast Research and Demonstration Farm Field Day in June 2009.

ISU sustainable ag grad students benefit from Center assistance

The ISU Graduate Program in Sustainable Agriculture (GPSA) receives funding for two full research assistantships from the Leopold Center. The GPSA administration then supplies the funds for student faculty research teams. The FY2009 recipients of Center funding were:

Phil Damery, M.S., advised by Nancy Grudens Schuck, Department of Agricultural Education and Studies

Damery investigated multiple leadership philosophies in the context of agricultural education and outreach programs. As part of his departmental duties, he taught AgEds 315, "Personal and Professional Leadership in Agriculture." Drawing on personal experience, Damery worked with students to help them develop their own approaches to leadership, realized in a community based setting. He trained students in techniques for facilitating small group discussion and interactions in diverse situations. He supervised course projects in which students planned and implemented service learning activities in the local community.

Sue DeBlieck, M.S., advised by Jerry DeWitt, Department of Entomology

DeBlieck received a relatively small proportion of her funding from the GPSA to help conclude her research and development work with the Farm to ISU

program, a 2007 recipient of Leopold Center support. (The major proportion of DeBlieck's funding was provided by extramural grants.) The Farm to ISU program is an initiative undertaken by ISU Dining Services to increase its purchases of local, sustainably produced, and organic foods. DeBlieck served as a key team member in helping to develop the program, conduct participatory research and workshops with students and producers, and create educational materials. She summarized her research and experience in several papers and a Creative Component as the final project for her M.S. degree.

Diego Thompson, M.S., advised by Cornelia Flora, Department of Sociology

Thompson gathered demographic data about Latino immigrants in Iowa and conducted interviews with Latino businesses in four rural communities to support the project, "Rural Development in Regions Heavily Impacted by Immigration," directed by Jan and Cornelia Flora.

Thompson also participated in the project, "County Of Marshall Investing in Diversified Agriculture," or COMIDA (the acronym for the project as well as the Spanish word for "food"), which is part of the Regional Food Systems Working Group administered by the Leopold Center's Value Chain Partnerships project. He helped conduct market research surveys, which included 30 grocery stores, restaurants, and institutional food buyers. The results showed that these groups were willing to buy local products, but also revealed that there are many obstacles that need to be overcome to increase local sales. He gathered data for and created a social mapping of networks that includes all institutions and participants involved in COMIDA. This background work will inform his thesis on human, cultural, and social capitals among Latino gardeners in Marshalltown and Denison, Iowa.



PRACTICAL FARMERS OF IOWA

SHARE KNOWLEDGE AND EXPERIENCES

With support from the Leopold Center, this last fiscal year was a significant year for Practical Farmers of Iowa (PFI). The Leopold Center's support allowed PFI to hold more than 90 events that reached more than 2,300 Iowa farmers and consumers.

Practical Farmers of Iowa filled the summer with field days in FY2009 and the Leopold Center's support was critical to the organization's ability to put on 28 field days with so little staff. An estimated 1,500 people attended PFI field days; more than half were not PFI members. Among the topics covered at those field days were: organic cropping systems, vegetable seed treatments, a Buy Fresh Buy Local tour of the Sioux City area, and water quality in sustainable farm systems.

PFI continued to expand its Cooperators' Program to include more farmers and additional projects. Seventy three farmers came together in February to set priorities for the program, an increase from 51 farmers in 2008. Farmers chose five areas (field crops, grazing, horticulture, poultry, and niche pork) for investigation. Then they prioritized their questions, and identified projects that could answer their questions. The farmers also attended sessions designed to give them more information in each interest area, such as carbon sequestration, setting prices, determining equipment needs, and pasture poultry breeds.

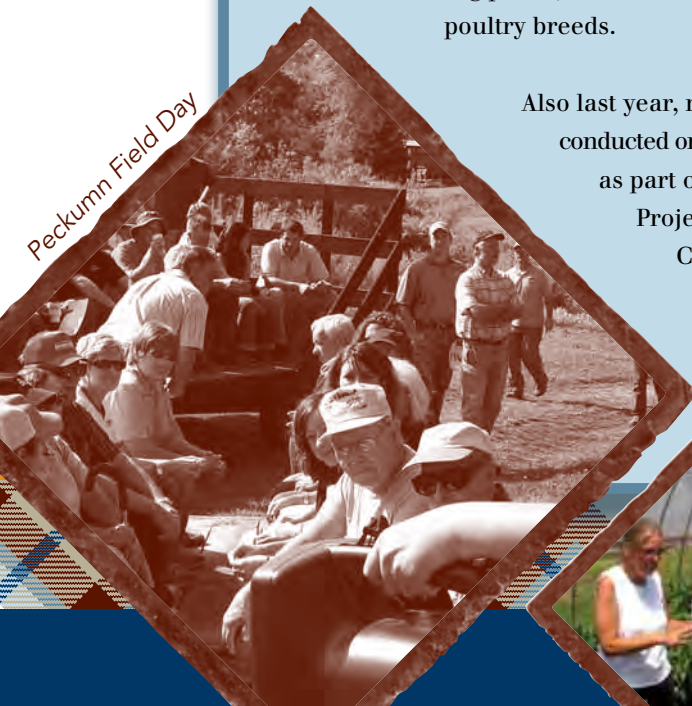
Also last year, more than 40 farm families conducted on farm research and demonstration as part of the PFI Cooperators' Program. Projects funded by the Leopold Center included one exploring a natural methionine source to help ensure poultry

development and good weight gain. A second project involved cooperators collecting data in an attempt to find the best tomato training structures for keeping disease pressure at a minimum in heirloom tomatoes.

Leopold Center support was critical for the success of the PFI annual conference, which drew 350 people in January 2009. The conference included ample time for networking and also a blockbuster schedule of speakers. Highlights included sessions on beginning farmers, grazing, on farm energy, and tasting of local foods. The Spencer Award was given to Steve Reinart at the meeting, and the PFI Sustainable Agriculture Achievement award was presented to Vic and Cindy Madsen of Audubon.

Telling a story is often the best way to communicate information. In this past year, Leopold Center support allowed Practical Farmers of Iowa to continue to tell the story of Iowa's conservation farmers who they are, what production and marketing questions they have faced, and their solutions. PFI developed these stories, or profiles, for their newsletter, for their Web site, and also to distribute to statewide media.

Peckum Field Day



HENRY A. WALLACE CHAIR FUNDS STUDENTS AND ECOLOGICAL RESEARCH



The Leopold Center has provided \$20,000 annually to support the Henry A. Wallace Endowed Chair for Sustainable Agriculture since its inception in 1998. ISU agronomy professor Matt Liebman is the incumbent Wallace Chair. For more details about the Wallace Chair and its programs, see <http://www.wallacechair.iastate.edu>.

Liebman's current research, outreach, and teaching activities focus on ways to use ecological processes to reduce dependency on agrichemicals and fossil fuels. Among his specific interests are: (1) use of perennial crops and prairie species as biofuel feedstocks; (2) weed suppression by diverse crop rotations and rodents and insects that consume weed seeds; (3) nutrient cycling in integrated crop livestock systems; (4) energy costs and economic returns associated

with simple and diverse rotation systems; and (5) dynamics of native plant communities in filter and buffer strips constructed in and around corn and soybean fields.

Graduate students

In 2008-2009, Leopold Center funds administered by the Wallace Chair were used to support two graduate students, Yuichiro Amekawa and Michael Cruse. Amekawa, who will graduate in December 2009, began his Ph.D. studies with funding from the first Wallace Chair, Lorna Michael Butler. Liebman maintained support for Amekawa's work on small scale farmer livelihoods in Thailand.

Cruse analyzed fossil energy use in conventional and diversified, low external input (LEI) cropping systems in Iowa and

CPR axed, research summaries now available on-line only

Since 1992, the Leopold Center has published its *Center Progress Report*, an annual publication containing summaries of research projects funded by the competitive grant program and completed during the previous year. In early 2009, the decision was made to cease publication of the *Center Progress Report*, for both financial and environmental reasons. The Center will continue to share its latest research results with the public, but these summaries will be available for reading or reprinting only on the Center's Web site.

"This change in delivery method will save money for the Center and also will allow us to provide the very newest results from our three research initiatives to the larger public much more quickly. Most of our readers are used to receiving information on-line and we hope the transition will be an easy one for them," notes Center director Jerry DeWitt. "While

we regret the loss of the paper version of the *Center Progress Report*, posting the summaries on-line is an environmentally responsible decision that positions the Center squarely within the directives of the ISU campus sustainability mandate."

The Center now provides one-page project synopses of the research results at the on-line site, as well as the longer summaries for every completed project. New research summaries will be added to the page quarterly as investigators submit their findings to the Center. See the latest research summaries at www.leopold.iastate.edu/research/topics.html.



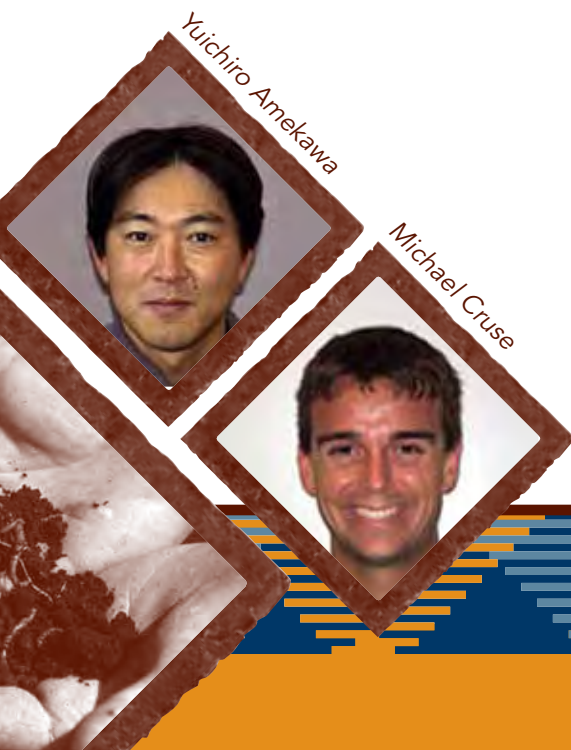
graduated with a joint M.S. degree in agronomy and sustainable agriculture in June 2009. He is now pursuing a Ph.D. at the University of Wisconsin Madison doing research that will focus on the environmental impacts of different biofuel production systems.

Varied cropping systems assessed

Cruse analyzed six years of data from a cropping systems experiment conducted in Boone County in central Iowa. The study compared a conventionally managed two year rotation of corn and soybean with two LEI systems: a three year rotation of corn soybean small grain + red clover and a four year rotation of corn soybean small grain + alfalfa alfalfa hay. In the three and four year systems, triticale was used as the small grain crop in 2003-2005, whereas oat was used in 2006-2008. Manure was applied in the three and four year rotations before corn production at a mean dry matter rate of 10 Mg ha⁻¹, representing about 70 percent of the manure that would be available on a farm where cattle were raised on the quantities of corn and forage obtained from the experimental plots. All crops were managed with standard farm machinery.

During the period from 2003 to 2008, synthetic N fertilizer inputs were reduced 66 percent in the three year rotation system and 78 percent in the four year rotation system compared with the two year system. Similarly, herbicide use was reduced by an average of 80 percent in the three year system and 85 percent in the four year system. Despite these reductions in inputs, corn and soybean yields in the LEI systems matched or exceeded levels obtained from the conventionally managed two year system. Crop yields in all of the experimental systems were similar to, or greater than, mean yields of commercial farms in the surrounding county in all years of the experiment.

Energy analyses indicated that the three and four year LEI rotations used considerably less fossil fuel energy than did the two year conventional system, whereas the quantities of crop energy produced per unit of fossil energy input were highest in the four year LEI system and lowest in the two year conventional system. Monetary returns also were highest in the four year LEI system, regardless of whether manure was considered free or priced at the commercial value of the nutrients it contained. These results suggest that diversified crop rotation systems integrated with livestock production are likely to become more important as energy costs rise.



Average monetary return to land and management per unit of fossil energy input (\$ GJ⁻¹)

*Source: Cruse, M.J., M. Liebman, D.R. Raman, and M.H. Wiedenhoef. In review.
Fossil energy use in conventional and low-external-input cropping systems.
Proceedings of the National Academy of Sciences.*

Rotation System	Management	Fossil energy inputs (GJ ha ⁻¹ yr ⁻¹)	Energy gain ratio (crop energy out/fossil energy in)	Manure considered free except for application costs	Manure cost set equal to prices of synthetic fertilizer plus application costs
2-year	Conventional	16.1	8.4	47	47
3-year	Low external input	9.5	14.0	84	73
4-year	Low external input	7.1	19.8	107	97

ORGANIC PROGRAM ADDS COURSE AND OUTREACH

FY2009 research programs and locations

Neely-Kinyon Farm, Greenfield

- Comparison of Organic and Conventional Crops, Long-Term Agroecological Research (LTAR) site
- Management of Soybean Staining Disease and Soybean Aphid in Organic Soybeans
- Organic Soybean Rust Management
- Disease Management of Organic Grapes
- Organic Corn Hybrid Mixing Study (with Ohio State University)

Armstrong Farm, Lewis

- Organic Fertilization of Pepper and Tomato
- Insect Pest Management in Organic Sweet Corn

Crawfordsville

- Organic Barley Trial: Southeast Research Farm

Jefferson

- On-Farm Organic Corn Fertilization Trial, Shriver Farm

Adel

- On-Farm Organic Apple Pest Management Trial, Wills Family Orchard

Lubke Farm, Ridgeway

- Organic Corn Hybrid Mixing Study (with Ohio State University)

Frantzen Farm, New Hampton

- Organic Corn Hybrid Mixing Study (with Ohio State University)

The Leopold Center has provided long term support for the expansion of organic research, extension and education at Iowa State University. The organic study program is managed by Kathleen Delate of the ISU horticulture and agronomy departments and Cynthia Cambardella of the National Laboratory for Agriculture and the Environment with assistance from graduate students.

Outreach

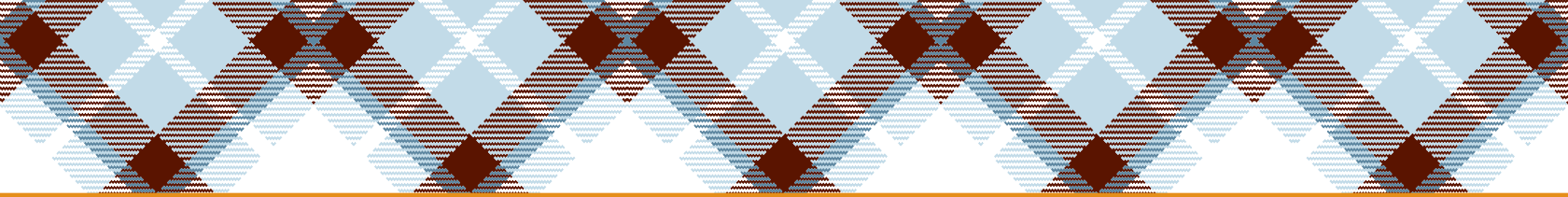
Delate and her associates presented research results from their organic projects to 2,792 participants through 38 research and extension presentations in Iowa and other states/countries.

Delate and Leopold Center director Jerry DeWitt developed and presented the first semester long course in “Organic Agriculture.” The 16 week course was held on campus and broadcast via the Internet to ISU Extension offices and to individual clients (total of 53 participants). Guest lecturers were featured from organic, academic and farming communities in Iowa and Wisconsin.

Delate organized a six institution (ISU, University of Florida, Michigan State University, The Rodale Institute, University of Minnesota, and University of Wisconsin) training and grant writing session for a USDA project to develop the organic no till research and extension project that was funded in 2008.

A USDA SARE “Transitioning to Organic” workshop was offered in Adair County, September 23, 2008, for 60 producers and agricultural professionals from three states.

Research results were presented at two field days at research station and on farm sites, addressing organic grain, hay, and vegetable crops research, reaching a total audience of 300 producers and agricultural professionals.



Research and extension results from the Organic Agriculture Program were presented as invited talks at seven out of state conferences, including the Great Plains Vegetable Growers Conference, University of Illinois Organic Conference, Mid Atlantic Fruit and Vegetable Growers Conference, the Organic Farming Research Foundation National Research Symposium, USDA SARE National Conference, International Federation of Organic Agricultural Movements (IFOAM) International Conference, and the University of Missouri Organic Conference.

Program leaders responded to more than 240 phone calls and 800 e mails from producers and agricultural professionals related to questions on sustainable/organic agriculture practices, certification and other extension information.

Research results were shared with producers, agricultural professionals and consumers through publication of 10 research reports posted on the ISU Research Farms Web site, the ISU Organic Ag Web site, and on the USDA Organic Agriculture Consortium (OAC) national OrganicAgInfo webpage.

More than 400 copies of the Organic Agriculture Series and other extension publications about organic agriculture were distributed to interested parties.

The eighth Iowa Organic Conference focusing on organic production, policy, and marketing was held in the fall of 2008. Organizers coordinated 25 speakers and arranged for preparation of an all organic meal for 236 participants.

Work continued on the Iowa State University Organic Agriculture Web page with links and discussion of relevant research and policy issues.

The year 2008 marked the 11 year anniversary of the Long term Agroecological Research (LTAR) plots at Neely Kinyon Farm. This research site has gained international status, along with other long term organic plots in the United States (such as the Rodale Institute, North Carolina State, and University of California Davis plots).

Benefit to the Leopold Center

Projects in organic agriculture research, extension and education represent a small portion of the overall Leopold Center budget. With 507 certified organic farmers in Iowa and countless others interested in transitioning to organic agriculture asking ISU to address their research needs, Leopold Center support is crucial. The widespread recognition of the Neely Kinyon LTAR and the Organic Agriculture Program, and resulting extensive press coverage, is a direct result of funding from the Leopold Center.

The original \$50,000 annual provision from the Leopold Center was multiplied four fold by the ISU Organic Agriculture Program's leveraging efforts in FY2009. The funding was leveraged to obtain grants from the USDA CSREES, USDA SARE, the Rodale Institute, and industry to support four undergraduate and two graduate students at ISU.



Grape and Wine Industry Institute work continues



Leopold Center strategic investment funds were used to support Murli Dharmadhikari, ISU Extension enologist and director of the Midwest Grape and Wine Industry Institute at Iowa State University. He manages the work of the institute, supervises the wine research and service laboratory, and conducts Extension outreach in enology.

Wine tourism conference

A wine tourism conference was held March 20, 2009, in Des Moines, in conjunction with the Iowa Wine Growers annual conference. Approximately 100 people representing neighboring states attended. Speakers with expertise in wine tourism were invited from New York, Ohio, North Carolina and Washington state. They addressed a variety of topics aimed at promoting wine tourism including:

- Selling Wine at the “Cellar Door”
- Promoting Wine Tourism through Partnership
- Building Regional Identity in Today’s Grape and Wine Industry
- Organizing a Wine Festival to Market the Wines
- Establishing a Wine and Culinary Center to Promote Local Foods and Wine

Sustainable wine grape industry

The wine industry in Iowa has grown considerably over the last decade. In 2000 there were 13 wineries, five commercial vineyards and 15 acres planted with grapes. In June 2009 Iowa had 75 wineries, and more than 400 commercial vineyards covering more than 1,200 acres. Long-term growth and sustainability of Iowa’s wine industry depends on nurturing a sustainable and profitable grape industry. Currently, many new growers follow a wide range of viticulture practices for crop production. The growers would benefit tremendously from learning/adopting sustainable grape-growing practices, so a project to encourage a more sustainable wine grape industry was begun. Plans are underway to develop an Iowa

Wine Growers Self-Assessment Workbook that will help the wine growers implement sustainable farming practices. In developing a workbook suited for Iowa viticulture, expert advice is being sought from Lodi (California) and Cornell (New York), areas that have established successful sustainable regional grape-growing programs.

Research results

The harvest fruit composition of selected cold-hardy cultivars grown in four locations was investigated. The results showed that some moderately cold-hardy superior wine varieties such as Vidal, Vignoles, and Traminette are better suited to southeast and southwest Iowa locations.

Hardy varieties such as Foch, La Crosse and Edelweiss are suited to central and southern locations and very hardy varieties (Briana, Frontenac and Marquette) can be grown in all Iowa locations, but particularly central and northern Iowa. Another important finding revealed that cold-hardy grapes (riparia parentage) contain 2.5 to 3 times more malic than tartaric acid. This acid profile is the reverse of the acid levels found in vinifera grapes. This acid profile poses a special challenge to winemakers because chemical de-acidification is difficult and malic acid is biologically unstable. It is important to note that these vineyards are young and research needs to continue to be done to get a better understanding of the fruit composition. This will permit wineries to develop appropriate techniques to make better wines from the cold-hardy cultivars. The results also suggest that the central and southern Iowa locations are more suited to red wine grape production and central and northern locations are better suited for growing white wine grape cultivars.

Jennifer Hansen



DRAKE AGRICULTURAL LAW CENTER AND LEOPOLD CENTER TEAM UP TO STUDY LAND TENURE AND SUSTAINABILITY

How does land ownership affect sustainability? Can landowners and tenants be encouraged to choose more sustainable lease options? A new two year jointly funded program the Iowa Landowner and Sustainable Agricultural Land Stewardship project unites the Leopold Center and the Agricultural Law Center at Drake University in seeking answers to questions like these.

“Many of Iowa’s key land use decisions are not necessarily being made by producers living on their farms,” said Leopold Center director Jerry DeWitt. “We have absentee landlords, tenant farmers, or joint owners in one family making choices about production, land maintenance and conservation. We wanted better information about how to help them make the best determinations that will sustain their land for the future.”

Agricultural land leases

Recent data confirm the ownership of Iowa farmland is increasingly concentrated among older citizens and more than half of Iowa is farmed under lease. The project is examining Iowa farmland ownership and leases as well as the transition of land to new owners, many of whom will lease farmland to others. “We’re studying current farm leases to provide information for how landowners can promote conservation and sustainable agriculture,” said Neil Hamilton, director of Drake’s Agricultural Law Center. “The increase in absentee owners makes communicating conservation goals more challenging.”

The project also is examining the proliferation of legal agreements impacting farmland, such as wind right leases, manure easements and carbon marketing contracts. “Iowa land owners are entering many legal agreements on their land, which makes understanding how the agreements may affect future actions more complicated,” said Hamilton.

Under the project the Agricultural Law Center is conducting research on leasing and landownership, inventorying and analyzing land tenure agreements, interviewing landowners and advisers, developing survey tools, collecting other land related agreements, and preparing educational materials for landowners, farmers and the public. During the summer of 2009, the Center provided research stipends to several law students examining different aspects of land tenure and conservation. Interns worked with the Leopold Center, the Iowa Natural Heritage Foundation, and the Iowa Environmental Law Council. Drake student Keith Duffy worked full time for the Center studying commonly used land agreements and their impact on conservation. He conducted interviews with public officials, farmers, researchers, and others involved with farmland management. To date Drake has assembled collections of: a) farm leases commonly used in the Midwest; b) wind rights agreements used in Iowa and c) carbon sequestration contracts used by aggregators across the nation in emerging markets for farm based carbon offsets. The research on agricultural leases in Iowa and neighboring states focused on provisions relating to soil conservation, good husbandry, and other environmental issues, including the removal of crop residue and biomass.

The Agricultural Law Center made significant progress on a Drake funded component of the project, an educational documentary “The Land Remains.”



Grass-Based Livestock Working Group awards first grants

With the goal of “collaborating to strengthen Iowa’s grass-based livestock industry from pasture to plate,” the Grass-Based Livestock Working Group (GBLWG) spent its first full year of operations getting organized and determining how to serve the varied needs of grass-based livestock producers and marketers in Iowa. The group was created in response to a call for cross-initiative projects, and is coordinated by Andrew Larson, ISU Extension small farms sustainability specialist. A steering committee composed of representatives from Iowa Natural Resources Conservation Service, ISU Extension, Iowa Cattlemen’s Association, Practical Farmers of Iowa, and the Leopold Center was formed in summer 2008. In August, a facilitated needs assessment with the working group helped to identify and organize priorities within four focus areas: production, marketing, ecology, and policy. A request for proposals for research and demonstration projects was released in November, and the steering committee awarded four grants.

2009 GBLWG research and demonstration grants

Demonstrating the economics of managed grazing systems

Denise Schwab, ISU Extension

This project will tally the costs and returns of pasture management, including the economic inputs into the pasture system and the grazing days and weight gains from the pasture. Twelve eastern Iowa beef producers will track expenses related to the pasture, grazing days, and

weights and body condition scores on and off pastures, using continuous grazing, slow, and fast rotation grazing regimens. Final comparisons will include costs by grazing system per grazing day, weight production by grazing system, and cost and labor by grazing system.

Improving income opportunities for grass-based livestock producers through capacity building

Sarah Carlson and Gary Huber, Practical Farmers of Iowa

To improve producers’ knowledge and ability to make well-informed marketing decisions, this project sponsored a day-long workshop featuring Mike Lorentz from Lorentz Meats in Cannon Falls, Minnesota, and a panel of producers who are currently direct-marketing meat. Lorentz taught producers about accurately documenting costs of production, strategies for pricing products competitively, hints for relationship building with processors, and ideas for building a consumer base. The producers on the panel shared experiences and answered questions about their own marketing decisions and efficiency.

Demonstrating the benefits of managed grazing of natural and wildlife lands

Joe Sellers, ISU Extension; Inger Lamb, Iowa Native Lands; and Stan Burnan, Agren, Inc.

In recent years, controlled grazing has been embraced as a land management tool by land managers and conservation entities as a method to add disturbance that will reduce encroachment of woody brush, better maintain wildlife habitat,

and transition marginal lands to productive pastures. This project will produce print and on-line case studies for use as outreach tools that showcase examples of Iowa operations with cooperation between grazing and wildlife management. Also, the project will support a follow-up to a 2006 conference that will offer the latest information on grazing native plants.

Mapping the landscape of grass-based livestock production in Iowa:

Understanding how social, economic and environmental factors influence the development of grassland agriculture

John Tyndall, ISU natural resource ecology and management; J. Arbuckle, ISU sociology; and Mae Petrehn, graduate student, ISU sustainable agriculture

This project will support a comprehensive, multi-scale literature review synthesizing reports and publications that are specific to grazing in Iowa and the broader U.S. Cornbelt region. The goal is to fully characterize what is known about the current conditions of grazing in row-crop dominated landscapes and economies. The final literature review will help the working group constituents determine the connections between organizations and institutions, distinguish trends, and compare with other studies regarding grass-based livestock production both regionally and nationally.



The Ecological Systems and Research program placed new emphasis on better communicating about its directions, focus and projects, starting with a simplified restatement of the vision, and a concurrent redesign of the Ecology Initiative web pages using visual and video media. The new “On the Ground with the Leopold Center” Web feature (two to three minute video clips) shows project investigators explaining their work and its relevance to sustainability.

Research investments over the past year targeted practice and knowledge for increasing biological diversity, decreasing energy consumption, evaluating multi functional (yield plus) systems and outcomes, and identifying advantages of three and four year rotations over two year crop rotations. The work encompassed a wide range of practices and science.

Special projects

Impacts to the land water human system of rural Iowa from high intensity continuous maize production

T. Papanicolaou, University of Iowa and L. Burras, ISU agronomy

This collaboration between the University of Iowa and ISU seeks ways to link science based models with policy decision making. Data gathered from the Clear Creek watershed near Iowa City are the basis for a model to forecast how high intensity continuous corn production might impact land use and

water quality budgets in Iowa. Key questions being explored include: What are the most likely scenarios in terms of agricultural systems for Iowa’s 30 million farmed acres for the next five to 20 years? What are the likely short and long term impacts of those scenarios on water quality? What is a reasonable whole system cost benefit assessment arising from those scenarios?

Economic costs of energy use in forage only or commercial production cow herds

Denise Schwab, ISU Extension beef field specialist

Schwab is working with existing organic/grass fed cattle projects and Young Cattlemen projects to assess energy costs and attitude toward energy conservation among beef producers. Specific objectives are to compare fuel and utilities used in commercial cow calf operations with forage only operations, and then document producers’ attitudes toward energy conservation in beef cow production. Schwab is analyzing cost of production data from five forage only operations and 10 commercial operations.

Concept mapping to analyze social barriers to adoption of managed fire and grazing systems

L. Wright Morton, ISU sociology

This project builds on earlier competitive grant work that explored use of fire and grazing on private and public lands. Landowner adoption and civic support

seemed low relative to the benefit, so Wright Morton is using software to assess (1) the landowner’s personal beliefs, attitudes, and experiences; (2) beliefs of technical service (‘conservation’ or ‘natural resource’ or ‘land management’) professionals and their knowledge and capacity to transfer these attributes; and (3) the ability of the science underlying grazing, burning, production agriculture, habitat quality, biotic and abiotic factors to influence decisions and actions on private grasslands.

Iowa Learning Farm River Talk videos
J. Comito, ISU sociology

Expanding on the success of the Iowa Learning Farm’s Culture of Conservation video series, this set of videos uses a narrative style and perspective of a river/stream to weave together the relationships among science, land, people and water.

Iowa Learning Farm conservation trailer
M. Helmers, ISU agricultural and biosystems engineering

A new mobile conservation trailer under construction will capitalize on the work of the Iowa Learning Farm. The trailer is designed with interchangeable exhibit spaces inside and out. Learning modules are focused on soil and water quality and related conservation practices previously identified through Leopold Center and ISU research.

First steps toward new tools and policies to reduce nitrogen pollution and greenhouse gas emissions

M. Liebman, ISU agronomy; M. Tomer and T. Sauer, USDA ARS Agriculture and the Environment Research Center; M. Wander, University of Illinois; and J. Neal, Leopold Center

The partners received a \$50,000 grant from the Organic Center as part of a multi partner (Washington State University, The Organic Center, ISU College of Agriculture and Life Sciences and Henry A. Wallace Chair) proposal ultimately funded by the Packard Foundation. The long term goal is to show the links between where and how food and livestock are raised, and how production systems and practices impact food safety. Short term work initiated in Iowa includes elements of agronomic and economic performance of conventional and alternative systems, soil organic matter dynamics, nitrate leaching from conventional and alternative systems, and greenhouse gas emissions.

An agroforestry and silviculture planning grant was issued, but the project lacked the leadership needed to sustain its activities. The effort was reconfigured as an ecology working group eventually to be headed by Malcolm Robertson of the Leopold Center. The group provides an open forum for voluntary participants to share information and determine agroforestry needs at the state and regional levels. Initially the group will focus on stakeholder (federal, state, private, and non profit organizations) interest in collaborating to explore

opportunities and enhance the adoption of sustainable agroforestry systems.

Grassland: Quietness and Strength for a New American Agriculture

The Ecology Initiative helped assemble the steering team that determined the scope and content for the new *Grassland* book, published in spring 2009. It was inspired by the classic USDA volume, *Grass: The 1948 Yearbook of Agriculture*, and a searchable copy of the original yearbook appears on the CD included with the new volume.

The book's three main sections highlight the voices of grassland advocates through history, examine the many functions of grassland today, and look at the benefits grass based agriculture can provide when grass is treated as an essential resource.

- "Past Is Prologue," tracks the history of grassland farming, emphasizing some of the philosophical arguments that advocate for grasslands as a vital component of an evolving American society.
- "The Present: Transitions over 60 Years," offers the foundation needed to move into the future, including updated information on cropping systems that include perennial grasses and legumes.
- "The Forward Look: Opportunities and Challenges," looks

at the role of grass based agriculture in maintaining the stability of rural communities, including the human health benefits when grasses and legumes are made a primary resource in the food chain.

The book was edited by ISU professor emeritus Walt Wedin, currently adjunct professor in agronomy and plant genetics at the University of Minnesota; and ISU agronomy professor Steve Fales. Jeri Neal and Fred Kirschenmann of the Center worked with the team of eight national authorities who provided guidance and with more than 65 writers who contributed to the project. The Center thanks Jean Wallace Douglas, whose vision and desire to honor Henry A. Wallace's legacy, along with a generous grant from the Wallace Genetic Foundation, made the book possible. *Grassland: Quietness and Strength for a New American Agriculture* can be purchased on line through ASA CSSA SSSA at: www.societystore.org, by phone at 608 268 4960, or by email books@agronomy.org.



Working groups

The Perennializers

Work to date shows that incorporation of a strategic, but disproportionately small amount of perennial vegetation within row crop dominated landscapes has the potential to minimize environmental impacts of agricultural production while enhancing ecosystem services and overall agroecosystem sustainability. The research team is examining differences in nutrient, water, soil retention, carbon storage and output, and impacts of management on pests and wildlife for selected mixtures of annual and perennial plant communities. This group was funded from several ecology related Center funds and evolved from an earlier Ecology Initiative project, “Variations in water and nutrient cycling and soil properties during agricultural landscape restoration.” It is now funded as a Center strategic investment and by a federal Agriculture and Food Research Initiative grant.

Green Lands, Blue Waters (GLBW) Regional

This multi state working group is a consortium of land grant universities and agricultural, environmental and rural development non profit organizations throughout the Mississippi River watershed (www.greenlandsbluewaters.org). Activities this year included three multi state meetings to exchange information, the writing of two joint research proposals, and the leveraging of research dollars and knowledge on a number of inter

and trans disciplinary working group efforts. A key enterprise was the establishment, vision and drafting of strategic plans for five multi state working groups. The Ecology Initiative supported the GLBW work through a “special agriculture appropriation,” consisting of federal funding for water quality related work obtained with the assistance of Senator Tom Harkin (D IA) and members of his staff on the U.S. Senate Agriculture Committee. This grant helped fund the Leopold Center/CARD hypoxia forum (see page 10) to support discussion about the next steps for hypoxia research and mitigation.

Midwest Cover Crops Council

The Midwest Cover Crops Council (MCCC) met in March 2009 to encourage widespread adoption of cover crops throughout the Midwest, and to improve ecological, economic, and social sustainability of agriculture. MCCC is a working group affiliate of the Green Lands, Blue Waters consortium, and includes participants from several Midwest states and Canada. Iowa is represented primarily via the development of a state cover crops team that is linked to the Green Lands, Blue Waters regional consortium and funded by the Ecology Initiative. The Iowa research effort is led by Tom Kaspar of the National Laboratory for Agriculture and the Environment, and on farm applications and outreach are coordinated by Sarah Carlson of Practical Farmers of Iowa (PFI). The Iowa group is developing a second farm outreach arm through

the Iowa Learning Farm project (see page 16).

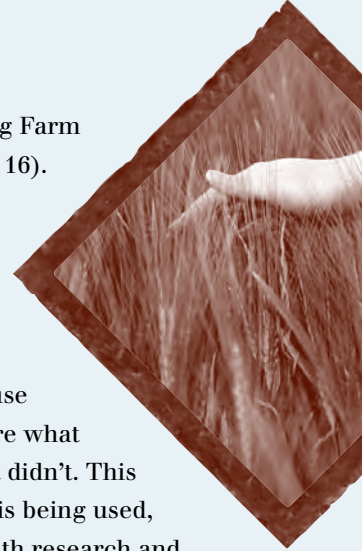
Iowa Cover Crops

Iowa farmers who have experience with cover crops can use this group to share what worked and what didn't. This information also is being used, in conjunction with research and learning efforts in other Midwest states, to develop materials about cover cropping systems, species and practices suited for the Midwest. A cover crops resource page was added to the Ecology Initiative site.

Grassland Agriculture Program (funded by Leopold Center and federal hypoxia funds)

The Ecology Initiative began this program in 2004 to identify and address the barriers to the development of grass based production systems in Iowa agriculture. This work complemented the Green Lands, Blue Waters efforts and program activities were coordinated by John Sellers, Jr., a Corydon, Iowa farmer. The work of the grassland program ended with the establishment of the Center's Grass Based Livestock Working Group (GBLWG) in July 2008. (see page 26).

Final activities for the grassland program effort included organizing partners to activate an Iowa chapter of GLCI (Grazing Lands Conservation Initiative); establishing relations and ensuring financial support with new Iowa State Conservationist for GLCI education,



outreach, and partnering efforts; acquisition of district financial support for ongoing riparian grazing research in the Rathbun Lake Watershed; organizing a successful November 25, 2008 Iowa Forage and Grassland Council annual conference; presenting to representatives and farmers from the Michigan Kellogg Biological Station group (agency, extension and MSU staff) on Chariton Valley Biomass Project and renewable energy; hosting a PFI field day on biomass and cellulosic ethanol; and providing more than 50 hours of mentoring for producers and forage professional partners.

Ecology Initiative support helps obtain Conservation Innovation Grant (CIG)

With a history of monetary and in kind support from the Ecology Initiative, Iowa's Boone River Watershed Partnership was able to secure a Conservation Innovation Grant for "A Cooperative Conservation Framework for Improving Watershed Health." The work is led by the Iowa Soybean Association and complements the work of Green Lands, Blue Waters Iowa and the Leopold Center through implementation of a farmer led demonstration and a multiple end point evaluation of cover crops and tillage transitions on three to five mainstream central Iowa farms.

Ecology Initiative Outreach

Ecology Initiative project investigators organized and hosted the Michigan Kellogg Biological Station August 2008 bus tour to biomass research plots in Ames, Nevada (BECON), and the Story

Wind LLC Farm in northeastern Story County for discussion of biomass futures.

Jeri Neal served on the ISU President's Advisory Council on Energy Conservation and Global Climate Change where she:

- Authored first draft for ISU sustainability policy document
- Created posters for the ISU sustainability event February 9
- Served on search committee that hired first ISU director of the office of sustainability programs
- Co led STARS metric assessment program

Neal participated in the Iowa Department of Natural Resources Stakeholder Legislative Forum and reviewed documents for the Iowa 319, Water Protection Fund, Watershed Protection Fund Project Application Review Board. She made a presentation on global climate change and agriculture at "Global Climate Change: Human Rights, Consequences and Responsibilities" at the University of Iowa International Programs Summer Institute for Teachers in June 2009.

ReGeneration Roadtrip: Buffers and biomass

In addition to stories about Ecology Initiative research projects in the agricultural media, the *Des Moines Register*, and local media, the Ecology Initiative garnered some interest from

different audiences and social media practitioners. Jeri Neal, Tom Isenhardt and Richard Schultz (the two leaders of the Center's venerable agroforestry team) hosted two bloggers at the Bear Creek buffers site (U.S. Department of Agriculture National Research and Demonstration Area) in Story County.

The bloggers were on a cross country trip to learn about green innovations as part of the ReGeneration Project. The ReGeneration Roadtrip, a cross country tour to "uncover and blog about the technologies, individuals and companies that are charting a 'greener' future," was sponsored by the Dell computer company. Road trip participants were Dell's chief environmental blogger, Todd Dwyer, and Sarah van Schagen, a reporter from the environmental publication *Grist*. Their road trip story is posted at www.grist.org/article/regeneration-roadtrip-buffers-and-biomass/.

Conservation brochure

A team of 15 Iowa State University researchers with ties to the Ecology Initiative makes the economic and environmental case for deploying a portfolio of conservation practices on the land in "A targeted conservation approach for improving environmental quality: Multiple benefits and expanded opportunities." The December 2008 four color publication is available at [www.extension.iastate.edu/store,PMR 1002](http://www.extension.iastate.edu/store,PMR1002).

MARKETING AND FOOD SYSTEMS INITIATIVE

The Marketing and Food Systems Initiative (MFSI) continued to expand its influence and activities, locally and nationally, under the direction of Rich Pirog, with program assistance from Beth Larabee, Malcolm Robertson, and graduate assistants Nick McCann and Becky Rasmussen.

Marketing Initiative activities and outreach

The capstone event for the initiative was its annual Marketing and Food Systems and Value Chain Partnerships workshop held in Ames on March 30. More than 200 people from six states attended. All current grantees presented results from their projects and their reports are available at www.leopold.iastate.edu/research/marketing_files/workshop09/index.html.

The Leopold Center was awarded \$30,000 to be the Midwest regional leader of the National “Good Food Network” of the Wallace Center for Sustainable Agriculture Winrock International Foundation. Ten organizations in Minnesota, Illinois, Wisconsin, Michigan, and Wisconsin are involved in this effort, which dovetails with initiative goals and programs.

Rich Pirog, Marketing Initiative leader, was actively engaged on many fronts of

the local food arena. He supervised a national consumer survey of perceptions on rising food and fuel prices and local food. He represented the Leopold Center on Iowa’s Farm to School Council and the National Farm to School Network, and the Iowa Foundation for Microenterprise and Community Vitality board. On behalf of the Center, he participated in the Iowa Ag Summit, Central Iowa Funders Forum, and the National Food Systems and Health Summit, which was held in Virginia and sponsored by the Kellogg and Robert Wood Johnson Foundations. Pirog co-authored an article published in the *Journal of World Intellectual Property*. During FY2009, he made more than 20 presentations on local food issues at events in Iowa and across the country, including one at the first USDA ERS summit on local food research.

The initiative continued its tradition of strong engagement with the national and local media through presentations and responses to more than 325 requests for information. Among the many media contacts made on food issues:

Iowa Farmer Today local food and food miles

CNN News local food ecolabels



Boston Globe local food opportunities for retailers

Associated Press local food, farm auctions, Amish and Mennonite farmers

Kansas City Star series on green living, local food

National Public Radio background on story comparing local and conventional food prices

WIRED magazine story on food pathways in Portland, Oregon

Washington Post food miles history

Iowa News Service radio national consumer survey local foods

CBS TV Early Morning Show background information for segment on Texas family following a local food diet

New York Times piece on high food prices, food canning, root cellars

Minneapolis Star background on how food policy affects consumers

MSN Money local CSA versus conventional food prices

St. Louis Post Dispatch challenges in scaling up local foods

ABC TV 20/20 background information for piece on local food impacts

Dr. Preston Maring, a physician with Kaiser Permanente Medical Center of Oakland, California, spoke about “Sustaining Iowa: Making the Connection between Food, Health and the Land” on November 11 in Ames, thanks to the leadership of the Marketing Initiative. He also appeared in Iowa City at the University of Iowa (Center for Health Effects of the Environmental Contamination) and Cedar Falls at the University of Northern Iowa (Center for Energy and Environmental Education).

Tools for food producers and consumers

The Marketing Initiative provided several new food information tools on its Web site. The U.S. Food Market Estimator is a tool with national applications, released in cooperation with ISU’s Center for Transportation Research and Education (now the ISU Institute

for Transportation). This tool can approximate markets for more than 200 different food products in every county and state in the United States. See it at www.ctre.iastate.edu/marketsize/

“The Climate Change in Agriculture Glossary,” assembled by Rich Pirog and graduate student Becky Rasmussen, offered definitions, supporting data, and tips on additional resources to help explain the terms commonly used in climate change discussions. Access it at: www.leopold.iastate.edu/research/marketing_files/glossary.pdf

Where do those fresh fruits and vegetables come from? Consumers purchase food at the local supermarket or restaurant, but the produce may have traveled across the globe to reach your community. A Web based resource from the Center (www.leopold.iastate.edu/resources/fruitveg/fruitveg.php) shows the origins of more than 95 different produce commodities that are shipped into or across the United States each year. Use it to find the:

- volume of shipments each year.
- leading state that produces it.
- regions or countries where shipments originate.
- percent (by volume) of total shipments each month, one indication of when

a fruit or vegetable crop may be in season.

Life cycle assessments are increasingly critical to making accurate judgments about the environmental costs of agricultural production systems or food supply chains. The Marketing Initiative currently is involved in two life cycle assessment information projects. On July 21, 2008, the Center sponsored a seminar on life cycle assessment presented by researcher Nathan Pelletier of Dalhousie University, Nova Scotia. Pirog and Pelletier are working on a life cycle assessment of beef production systems using Iowa and upper Midwest data. Pirog has facilitated Iowa data collection (with ISU graduate student Pete Lammers and ISU Extension swine specialist Dave Stender) for a life cycle assessment of pork production systems with Nathan Pelletier.

Information from seven research projects completed has been added to *Food Facts*, the Leopold Center’s on line publication of key findings from research, demonstrations, studies and surveys supported by the Leopold Center’s Marketing and Food Systems Initiative and the Value Chain Partnerships project.

As part of his summer 2009 internship at the Leopold Center, Drake agricultural law student Ross Baxter has been working on two Marketing Initiative projects that will add to the state’s store

of knowledge on local foods. One is an Iowa local food resource guide and the other is a document answering questions frequently asked by small market growers about food regulation laws.

Value Chain Partnerships (VCP) Phase III

Value Chain Partnerships is an Iowa based network for food and agriculture working groups that brings together producers, businesses, and state and federal organizations. This community of working groups acts as: (1) an information hub, (2) a catalyst for cooperation, (3) a magnet and (4) a scout.

VCP received \$22,000 for technical assistance from the Wallace Center for Sustainable Agriculture in addition to an earlier \$134,450 award during FY2009. Project organizers hired Gretchen Zdorkowski to lead the VCP group in compiling the first draft of a sustainability plan. They also retained Sue Honkamp to develop a marketing plan and brand for VCP. New posters and brochures were developed for all VCP working groups.

VCP also was granted more than \$65,000 from the North Central Sustainable Agriculture Research and Education Professional Development Program (SARE PDP) to conduct training on communities of practice. Work on the project began with a pilot program for

ISU Extension staff on April 30. The Value Chain Partnerships Community of Practice Workshop in late July 2009 had participants from 17 states.

Pork Niche Market Working Group (PNMWG)

PNMWG held three June 2008 field days on retrofitting hog facilities for niche pork production. Team members developed training materials on four niche pork production topics that were used during 13 training events conducted for 71 farmers. A set of “virtual tours” of niche pork operations was created in conjunction with the ISU Pork Industry Center and ISU Extension. The group is led by Gary Huber.

Small Meat Processors Working Group (SMPWG)

The Beef and Pork Whole Animal Buying Guide, as well as the *Guide to Designing a Small Red Meat Plant* were released. A meat plant optimization workshop held May 12 attracted 11 Iowa meat processors. Two meat processing plants are interested in using the process improvement software being developed. SMPWG Iowa work is linked to a national eXtension CoP (community of practice) the Niche Meat Processor Assistance Network (www.nichemeatprocessing.org).

Fruit and Vegetable Working Group (FVWG)

The group identified priorities and constraints to industry growth and began building bridges among buyers and produce farmers, among them the Mennonite and non Mennonite growers in northeast Iowa. Group leaders Malcolm Robertson and Margaret Smith established an advisory committee to help direct the group and determine what research projects to fund in its second year. Tools to aid in decision making and post harvest handling and two workshops were planned for Summer 2009.

Regional Food Systems Working Group (RFSWG)

Organizers completed a publication on developing branding and marketing messages for the groups in the network. The group leaders coordinated links between RFSWG local groups and new Leopold Center competitive grant projects that were focused on service learning projects for sustainable agriculture graduate students.

2009 Franklin County Fair





January 2009 local
RFSWG areas

The Leopold Center, through the efforts of the Regional Food Systems Working Group, is supporting Iowa's local food system efforts in these areas:

- **Hometown Harvest of Southeast Iowa** (Davis, Jefferson, Keokuk, Mahaska, Van Buren and Wapello counties), led by the Pathfinders RC&D, Fairfield
- **Northeast Iowa Food and Farm Coalition** (Allamakee, Clayton, Fayette, Howard and Winneshiek counties), led by Iowa State University Extension, Decorah
- **Southwest Iowa Food and Farm Initiative** (Adair, Adams, Audubon, Cass, Guthrie, Montgomery, Pottawattomie and Shelby counties), led by the Wallace Foundation for Rural Research and Development, Lewis and Golden Hills RC&D

- **Northern Iowa Food and Farm Partnership** (Black Hawk and neighboring counties) led by the UNI Center for Energy and Environmental Education (new this year)
- **Northwest Iowa Regional and Local Foods System** (Cherokee, Ida, Monona, Plymouth, Sioux and Woodbury), led by Sherry McGill and Abbie Gaffey of ISU Extension in Woodbury County
- **Marshall County** (led by Prairie Rivers RC&D in 2008 and COMIDA County of Marshall Investing in Diversified Agriculture, also Spanish for food, in 2009)

Several of these counties (Pottawattomie, Cass, and Black Hawk) have made a further commitment by investing county funds in local food projects.

Results worth waiting for

A few years back, the Leopold Center's Marketing Initiative funded a grant to help a group of Iowa wine growers and development officials at Limestone Bluffs RC&D apply to establish an American Viticultural Area (AVA) in Iowa. The benefits of having such a

designation are significant – being part of an AVA means that vintners can better describe the origin of their wines and consumers can better identify wines they purchase.

In June 2009, the Alcohol and Tobacco Tax and Trade Bureau (TTB) published a final rule in the Federal Register establishing the Upper Mississippi River Valley viticultural area. This AVA consists of 29,914 square miles in portions of southeast Minnesota, southwest Wisconsin, northwest Illinois, and northeast Iowa. The AVA designation will put Iowa on the map as a distinct grape growing region and will enable producers to focus on specific varieties of grapes adapted to the region that will produce high quality wine. If 85 percent of the grapes used in the production of a varietal wine are produced within an approved AVA, the AVA name can be used as the Appellation of Origin on the wine label, allowing the winemaker to charge \$1 to \$2 more per bottle.

In addition to supporting Iowa's first AVA petition to formally recognize a distinct grape growing region, the project also helped establish the Iowa Wine Trail, a regional visitor destination that attracts people from a larger geographic area. The Iowa Wine Trail served as a successful model for other wine trails being formed in Iowa and the surrounding region. These include the Western Iowa Wine Trail and the Amana Wine Trail, with additional trails under development.

POLICY INITIATIVE

Even though it is the smallest of the three research program areas at the Leopold Center, the Policy Initiative takes a keen interest in local, state, or regional policies that affect the sustainability of natural resources and Iowa agriculture. It also supports policy related aspects of work being conducted by the other two initiatives. Program leader for policy is Jerry DeWitt with assistance from Mary Adams, outreach and policy coordinator. The Policy Initiative sponsors competitive grants, workshops, and programs with local or regional policy implications.

Strategic investments in policy research

The Iowa Landowner and Sustainable Agricultural Land Stewardship Project

This two year partnership with Drake Agricultural Law Center and other agencies including the USDA tackles many questions about what has happened and what will happen to one of Iowa's prime assets, its rich farmland. Under the direction of Neil Hamilton at Drake University in Des Moines, a staff attorney and agricultural law students will explore trends in Iowa farmland ownership and the transition of land to a new generation of owners, many of whom will rent or lease farmland to others.

During May there was significant progress on a Drake funded component of the project – an educational documentary titled “The Land Remains.” Filming was conducted at more than a dozen farms and locations around the state and interviews were conducted with Jerry DeWitt and Mike Duffy (former Leopold Center associate director), among other sustainable agriculture leaders. Drake plans to develop several versions of the show including a shorter version for possible screening and a longer educational version with supporting curriculum materials. The first version of the program is planned for completion by late 2009.

Hamilton has held several meetings with USDA officials about an update of the 1999 book, *The Legal Guide to Direct Farm Marketing*. The new version will include chapters on land access and ownership, rental relations, and financing new and beginning farms. Hamilton

also made several presentations in June about various aspects of the project, including to the Changing Lands, Changing Hands conference in Denver and the Iowa Bar Association meeting. (For more information, see page 25).

Land Ownership and Tenure in the United States, a faculty sabbatical research paper by ISU economics professor Mike Duffy, includes data collection in New England, Mississippi, Idaho and California. Duffy, whose work is being coordinated with the Drake land tenure project, is particularly interested in where we might be going with the wholesale changes in Iowa farmland ownership. His research is attuned to issues about fewer beginning farmers and an agricultural system geared to eliminating small farm operators. The paper he plans to



produce will answer the questions:
“What do we do about this situation?
What do these trends mean long term
for conservation in the United States?”

Crop enterprise budgets for alternative crops
ISU economics professor Mike Duffy has been working with economics students to develop budgets for various alternative agricultural enterprises (crops and livestock outside the conventional corn/soybean regimen). These will be simple two to four page handouts and will explain alternative enterprises using a whole farm context. Beginning farmers must consider the risk, marketing, labor (quantity, timeliness, and skill), capital needed, time to pay off, traditional costs and returns, and a myriad of other aspects before starting a new enterprise. These will be especially useful for the Center’s Fruit and Vegetable Working Group. The series is jointly issued by the Leopold Center and the Beginning Farmer Center and will be available on both web sites. See them at www.leopold.iastate.edu/resources/enterprise.html

2008 workshops

The Policy Initiative and Ecology Initiative jointly sponsored two workshops in late 2008. “Hypoxia in the Gulf of Mexico: Implications and Strategies for Iowa” on October 16 explored how and what Iowa might do in response to the continuing challenges of hypoxia and other water quality issues. (For more information, see page 10)

“Learning from the Floods of 2008: Practical Strategies for Resilience,” on December 8 surveyed what happened to Iowa waterways and why, then considered what research currently available could be employed to mitigate further disasters. Workshop attendees enumerated the topics that needed additional research or land use policy changes to help avert further flooding. (For more information, see page 10)

Survey of county officials

The Policy Initiative, working closely with the Iowa State Association of Counties staff and officials, prepared an electronic survey in summer 2009 to determine what issues Iowa’s county supervisors viewed as most critical. Several questions were related to ecological and food production and marketing concerns. The survey was sent to all county boards in early July and results were compiled by Ross Baxter, a Drake University law school student. Information obtained from the survey about the supervisors’ policy interests and priorities will help guide future work and choices during the grant making process.

INITIATIVES EMBARK ON NEW PROJECTS FOR FY2009

Each Leopold Center initiative funds research, education, and demonstration projects to support its unique objectives. The projects are selected after a rigorous competitive grants process that begins with the issuing of a Request for Pre proposals in June, and culminates in the awarding of funds in January.

Three cross disciplinary groups or joint efforts at collaboration have been established within the competitive grants program in response to a special call for work that spanned all three initiatives; grass based livestock production, education for beginning farmers and on farm energy needs.



Ecology Initiative

The Ecological Systems Research Initiative funded 11 pre-proposals received from the Summer 2008 RFP. Nine projects received renewals for a second or third year of funding and 13 projects were granted no-cost extensions or slated to end.

Ecology Initiative existing grants –
Renewals for second and third years of funding
Total amount awarded //////////////\$146,359
Total number of projects ////////////// 9

New Ecology grants – FY2009
Total amount awarded ////////////// \$268,809
Total number of projects ////////////// 11

Agronomic, ecological and economic comparisons of conventional and low-external-input cropping systems, 3 years
M. Liebman, ISU agronomy; C. Chase, ISU Extension, Tripoli; and M. Wander, University of Illinois, Urbana-Champaign
Building on earlier work, this project aims to (1) measure crop yields, weed growth and weed seed densities in conventional and low-external-input (LEI) cropping systems; (2) assess labor requirements, energy consumption, input costs and net returns for conventional and LEI systems; (3) determine the impacts of soil microbes on the survival of weed seeds in conventional and LEI systems; (4) determine the impacts of conventional and LEI systems on soil organic matter and fertility; and (5) distribute results and insights through an outreach program.

Agronomic, environmental and economic performance of alternative biomass cropping systems, 3 years
L. Schulte Moore, ISU natural resource ecology and management; K. Moore, ISU agronomy; R. Hall, ISU natural resource ecology and management; A. Hallam, ISU economics; and M. Helmers, ISU agricultural and biosystems engineering
The project investigators are seeking biomass cropping systems that are productive, profitable, and mitigate the negative effects of annual crops on soil and water quality. Investigators

are developing and testing several alternative systems that include sweet sorghum/triticale for superior biomass yields; a corn-soybean-triticale/soybean and corn-switchgrass rotation to reduce environmental impacts; and combining triticale with aspen and cottonwood plantings to achieve short-term biomass yields and superior long-term yields. All systems will be compared to conventional continuous corn for 1) energy/fertilizer inputs versus biomass outputs, 2) impacts on soil and water quality, and 3) establishment, production, harvest and transport costs.

//NEW Assessment of woody biomass as a niche feedstock for biobased products in Iowa, 2 years

J. Tyndall, ISU natural resource ecology and management
This project will examine the wood-based feedstock supply in Iowa, including the availability, scalability, and infrastructural requirements needed for woody feedstock to supply fiber for bioenergy fuel and other biobased products. Although woody biomass seems to be abundant in Iowa, this project is needed to inform public policy initiatives, as well as public and private investments of this resource.

//NEW Corn silage test plot to increase profitability for dairy farmers and reduce winter wind and water erosion, 2 years

K. Boylen, Northeast Iowa Dairy Foundation, Calmar, and D. Thoreson, ISU Extension
This project, which began in late spring 2008, is the only independent corn silage test plot in Iowa. The team hopes to increase farmers' profitability by testing corn hybrids for yield traits. An increased amount of corn planted for silage could improve soil conservation.

Custom grazing in Iowa, 1 year, extended

T. Opheim, Practical Farmers of Iowa, Ames
This project evaluated existing grazing arrangements used in Iowa, will recommend how they could be improved, and create educational materials based on the findings. Fifty producers will be interviewed. Researchers will analyze data from an ongoing grazing and pasture rent survey done by the Natural Resources Conservation

Service. Results will be shared at a series of workshops and field days, along with information on successful models for custom grazing contracts in Iowa. An Iowa Custom Graziers Directory will be prepared.

Development and implementation of low input delivery systems for ethanol co-products in forage-based beef systems, 3 years, extended

D. Loy, ISU animal science, and J. Sellers, ISU Extension, Chariton
This three-part study will develop, test, and demonstrate low-cost and convenient delivery methods and supplementation programs using distillers feeds in forage-based beef production. This offers a management tool for graziers when forage resources are limited, and an outlet for the increasing amounts of co-products generated by the ethanol industry.

Energy use and nutrient cycling in pig production systems, 2 years

M. Honeyman, ISU Agricultural Research Farms, and P. Lammers, ISU animal science and sustainable agriculture graduate student
This project will quantify energy use in Iowa's pig production systems by using process analysis. All direct and indirect energy inputs in the construction and operation of a pig facility and in the cultivation and processing of feed ingredients will be considered. The results will provide an understanding of energy use and flows of an entire pig production system, for both conventional and alternative options.

//NEW Evaluating canola (*Brassica napus*) as an alternative oilseed crop and enhancing winter cover in Iowa, 3 years

M. Wiedenhoef and S. Gailans, ISU agronomy
One of the objectives of this project is to increase the amount of information available to growers about canola as a 'third' crop in Iowa. Investigators also want to increase information about winter cover crops in Iowa. The team will assess the economical and ecological impact of alternative cropping systems and different crop rotations. Data will be used to make recommendations to farmers.

//NEW Evaluating denitrifying bioreactors for edge-of-field nitrogen management in Iowa's tile-drained landscapes, 2 years

A. Bhandari, ISU agricultural and biosystems engineering

The long-term goal of this project is to promote sustainable agriculture by facilitating the adoption of nitrogen management practices in Iowa and the Upper Mississippi River Basin. Investigators will evaluate the field performance of denitrifying bioreactors, specifically a design that allows high nitrate removal. The design will be tested under field conditions experienced in Iowa.

//NEW Feasibility of unheated large gutter-connect greenhouses for Iowa winter organic vegetables, 1 year

S. McLaskey, Maharishi University of Management, Fairfield

This project's objectives are to determine whether it is practical to grow produce inside a large unheated greenhouse during winter months in Iowa. Investigators will compare air and soil temperatures as well as crop growth and yield in large and small unheated greenhouses. They also will construct frames that hold sheets of plastic over the beds and other strategies to facilitate growth. All work will be done by the staff at Maharishi University of Management Organic Farms in Fairfield.

Forage double-cropping demonstration, 3 years, extended

I. Lamb, Iowa Native Lands; S. Barnhart, ISU agronomy; and M. Honeyman, ISU Research Farms Research plots of cool-season legume crops (alfalfa and medium red clover) were inter-seeded with warm-season native prairie species to generate management and forage quality evaluation data. The investigators are seeking forage alternatives with improved diversity that will require fewer management inputs while exhibiting high-quality performance.

Grazing compatibility in and for future years, 5 years

C. Nelson, Southern Iowa Forage and Livestock Committee, and J. Klein, Natural Resources Conservation Service, Corning

Research and demonstrations are being conducted on wildlife compatibility with grazing and grassland pasture conversion from cool- to warm-season grasses. In-field education is ongoing with high school and college agriculture students to inform them about rotational grazing management and conservation.

Grazing prairie: Improving species diversity while maintaining cattle and goat productivity and resting home pastures, 3 years

D. Ryan and L. Appelgate, Iowa Heartland Resource Conservation and Development, Ankeny; L. Lown, Natural Resources Specialist, Polk County Conservation Board

The investigators seek to increase species diversity at Chichaqua Bottoms Wildlife Area in Polk County by grazing cattle on a 263-acre reconstructed prairie and browsing goats in three oak savanna areas degraded by invasive species. Calf-weaning weights, body condition scores, and the economic value of winter forage harvested or stockpiled on resting home pastures also will be measured.

//NEW Greenhorn Grazing: A modular pasture and animal management curriculum for beginning and transitioning graziers, 3 years

B. Leu, ISU Extension, Fairfield

Greenhorn Grazing is an educational program for beginning and transitioning producers who want to optimize production and realize the benefits of conservation. The project aims to lower the perceived barriers associated with entry into the grass-based livestock industry, to improve the productivity and use of land, to help maintain or increase perennial grassland agriculture, and to encourage life-long learning among graziers.

The impact of biodiversity services in row crop production in annual versus perennial landscapes, 2 years, extended

M. O'Neal, ISU entomology, and L. Schulte-Moore, ISU natural resource ecology and management

Investigators are comparing levels of insect biodiversity and insect pest suppression between integrated perennial-annual landscapes and landscapes dominated by corn-soybean production agriculture. This will offer a scientific foundation for enhancing biodiversity within landscapes dominated by annual row crops.

Integrated soil and weed management production systems for perennial food crops, 2 years, extended

G. Nonnecke and C. Dille, ISU horticulture; and T. Loynachan, ISU agronomy

The goal is to provide strawberry and grape growers with sustainable weed management options and improved tools which they can use to monitor and assess the quality of their soil. Two conventional and two alternative weed management systems will be tested for their effects on selected physical, chemical, and biological soil properties.

Iowa recreational property ownership: Identification, contact and social dynamics of multiple use perennial landcover, 1 year
M. Wagner, ISU landscape architecture; and J. LaGro, University of Wisconsin-Madison, urban and regional planning

Several barriers exist to the productive use of beef and dairy grazing on non-resident rural property in Iowa: lack of understanding about the extent and characteristics of non-resident owned land and identification of landowners and little understanding about their willingness to integrate contract grazing and other agricultural practices into their land use planning. The principal investigators are using GIS-based analysis to identify non-resident rural property owners in Fayette, Appanoose, and Clarke counties, and conducting telephone interviews with a sub-sample of non-resident landowners.

The landowners' decision: Grazing and fire as management tools on Iowa grasslands and oak savannas, 3 years

L. Wright Morton, ISU sociology

The project seeks to learn more about landowner attitudes, perceptions, and knowledge of fire as a management tool for controlling invasive species and enhancing conditions for native plants and animals on recreational and productive agricultural lands. There will be two surveys done, one of landowners in a watershed with existing prairie remnants and much potential for ecological restoration, yet under threat by invasive species; and a second will target the property owners in the Middle Raccoon River corridor and oak savanna restoration.

//NEW Land use conversion to perennial vegetation: Quantifying soil water regime and aeration and the implications for enhancing soil resilience to climate change, 3 years

R. Horton, ISU agronomy, and T. J. Sauer, USDA National Laboratory for Agriculture and the Environment, Ames

This project will characterize the soil water regime, look at the dynamics of the composition of soil atmosphere, and examine aeration effects on root activity and decomposition of organic matter. It expands ongoing ISU research at the Comparison of Biofuel Systems (COBS) site supported by Conoco-Phillips. (The COBS project seeks to identify and develop cropping systems that produce high yields of biofuel feedstocks while protecting soil, water, and air resources. Feedstock production treatments include continuous corn grown for grain and stover, with and without a winter cover crop; a mixture of perennial prairie plants with and without fertilizer addition; and a conventional corn-soybean cash grain system for baseline comparison.)

New strategies to enhance sustainability of Iowa apple orchards, 3 years, extended

M. Gleason, ISU plant pathology; and M. Liebman, ISU agronomy

This project aims to integrate the most sustainable pest management practices into an “environmentally best management practices” strategy that is more cost-effective and environmentally friendly than either traditional, spray-by-calendar management or conventional IPM methods. It also will explore the feasibility of incorporating hard cider production into the value-added product line of Iowa apple growers.

//NEW Optimizing buffer strips for improved ecosystem services, 3 years

M. O’Neal, ISU entomology; and L. Schulte Moore, ISU natural resource ecology and management

The goal of this project is to form a research base that can guide farmers, landowners and policy makers on the enhancement of ecosystem services derived from agricultural landscapes. Investigators hope to better understand how perennial vegetation can improve conditions for crop production. They plan to compare multiple options for buffer construction and improvement of buffer performance at on-farm sites. The project includes field days at the demonstration site.

Optimizing legume establishment in winter small grains, 3 years, extended

R. Horton, ISU agronomy, and J. Singer, USDA-ARS National Laboratory for Agriculture and the Environment, Ames

With some refinement of management techniques, winter cereal grains and frost-seeded forage legumes could play significant roles as important third and fourth crops in the corn-soybean rotation. Establishing legumes under cereal grains requires attention to canopy structure, plant height, and leaf orientation, all of which affect the amount of light that will be transmitted to the legume seedling. Investigators used frost seeding to determine which winter small grain plant traits enhanced forage legume establishment, and are developing a predictive modeling tool for selecting high-yielding cereal grain varieties suitable as companion crops for forage legume establishment.

Participatory ecology for ‘Agriculture of the Middle’: Developing tools and partnerships to bridge gaps among science, people and policy in landscape change, 3 years, extended

L. Schulte Moore and R. Atwell, ISU natural resource ecology and management; and L. Westphal, USDA Forest Service, North Central Research Station

Using community- and watershed-based strategies in two central Iowa watershed communities (Stanhope and Prairie City), the researchers conducted interviews to build rapport in preparation for a series of participatory design workshops. Partner organizations will help access key individuals within the watershed communities who are capable of initiating change.

//NEW Performance of cropping systems designed to reduce nitrate leaching into shallow municipal well aquifers, 3 years

R. DeHaan, Dordt College, Sioux Center

This project will assess cropping systems with the potential to produce a reasonable return for farmers, as well as simultaneously reducing the risk of nitrate-N movement into shallow aquifers. It will also share the received results with farmers, municipalities, the Natural Resources Conservation Service, the Iowa Department of Natural Resources and the research community.

Providing shaded pasture with perennial biomass energy plantings, 3 years

R. Hall, ISU natural resource ecology and management; J. Randall, ISU Extension forester for southern Iowa; and R. Abbott, landowner and cow-calf operation manager, Diagonal

“On-farm” evaluation continues for agroforestry techniques to improve pastures with tree shade and additional forage while producing woody biomass. Investigators will evaluate the mid-rotation growth phase of a silvopastoral system that combines one cycle of woody biomass harvest and alley-cropped hay production, which is then converted to shaded pasture. They also will look at the continued success of initial tilling, a weed mat cover, and mowing for hay in reducing competition between planted poplars and red clover/orchard grass pasture.

//NEW Quantifying the effect of perennial vegetation on soil and water quality, 3 years

T. Isenhardt and R. Schultz, ISU natural resource ecology and management, and K. Schilling, Iowa Department of Natural Resources

The investigators seek to understand the influence of perennial vegetation on soil biogeochemical processes. The information will be used to develop a tool to assess the potential impact of changes in land use on the quality of stream water. The researchers hope to document the temporal influences of perennial plants on various plant communities and groundwater.

Quantifying the role of perennial vegetation in removing nitrate from groundwater in riparian buffers, 1 year, extended

W. Simpkins, ISU geological and atmospheric sciences; R. Schultz and T. Isenhardt, ISU natural resource ecology and management; and T. Parkin, USDA-ARS National Laboratory for Agriculture and the Environment, Ames

This ecology project has narrowed its focus due to the loss of a Ph.D. student, but will continue to collect data on the potential ecosystem services resulting from the conversion of row-cropped lands to perennial vegetation for biofuel feedstock. Continuing analyses include soil aggregation, carbon dynamics (total and particulate organic matter), microbial biomass, and infiltration.

Reducing pesticide use in Iowa vineyards: Alternatives to herbicides for vineyard weed management, 2 years

G. Nonnecke and P. Domoto, ISU horticulture; and T. Loynachan, ISU agronomy

Weed management treatments for Iowa vineyards will be evaluated using a holistic approach by measuring weed growth, grapevine growth and development, and soil characteristics. The project will look at two conventional (tillage and herbicide), and two alternative (straw mulch and living mulch), weed management systems and their influence on weed and grapevine growth and development, fruit quality, and selected physical, chemical and biological soil properties. It also will investigate the influence of using trickle irrigation within conventional and alternative weed management systems.

Screening winter triticale cultivars and breeding lines for forage and biomass production, 3 years

E. Heaton, ISU agronomy

The project objective is to quantify Iowa’s forage and biomass production from commercially available winter triticale and rye cultivars, and screening breeding lines of winter triticale for forage and biomass production (double-cropping). Field experimentation and trait assessment trials at (Ames and Nashua) in 2007, 2008 and 2009 include 15 commercial triticale cultivars, 19 experimental triticale lines, five commercial rye cultivars, and two rye/triticale blends. The project originally was managed by Lance Gibson, who is no longer at ISU. Heaton is overseeing completion of the project, and has initiated new work on other crops (such as miscanthus) suitable for biomass production.



//NEW Site-specific implementation of practices that alter the spatial/temporal distribution of grazing cattle to improve water quality of pasture streams in the Rathbun Lake watershed, 2 years

J. Russell, ISU animal science

This project will evaluate and demonstrate the effectiveness of site-specific management practices that alter the distribution of grazing cattle. The goal is to reduce the risk of point-source pollution of streams in pastures of varying size, shape and shade distribution. The researcher will identify site characteristics that optimize these practices, such as stabilized stream access points with or without buffer fencing.

Soil moisture dynamics and plant transpiration under contrasting annual-perennial cover types, 2 years, extended

M. Helmers and A. Kaleita, ISU agricultural and biosystems engineering; and H. Asbjornsen, ISU natural resource ecology and management

Investigators hope to gain a better understanding of how soil moisture and plant water use vary under differing annual-perennial plant communities. This information will help land use managers understand how placement of different vegetative cover types on the landscape can influence the hydrologic balance and potentially enhance the sustainability of agricultural production systems. Sixteen different treatments (three replications) are being studied including corn, soybeans, brome grass, switchgrass, winter cover crops in a corn/soybean system, and four different native perennial species both in monoculture and polyculture plots (big bluestem, Canada wild rye, false blue indigo, and stiff goldenrod).

Survey of mycorrhizal symbioses at Neal Smith National Wildlife Refuge, 2 years, extended

I. Lamb, Iowa Native Lands; P. Drobney, Neal Smith National Wildlife Refuge; and L. Tiffany, ISU ecology, evolution and organismal biology
Staff conducted a preliminary survey of mycorrhizal (root fungus) associations in remnant and reconstructed prairies at the Neal Smith National Wildlife Refuge to establish baseline data and experimental protocols for future investigation of this biological component of the soil. The symbiotic relationships between plants, soil, and fungi and their contribution to plant and soil vitality are poorly understood, and this project offers a starting point for understanding soil functionality in perennial plant systems.

Variations in water and nutrient cycling and soil properties during agricultural landscape restoration, 5 years

H. Asbjornsen, ISU natural resource ecology and management; M. Helmers, ISU agricultural and biosystems engineering; M. Liebman, ISU agronomy; L. Schulte-Moore, ISU natural resource ecology and management; and R. Kolka, USDA Forest Service, North Central Research Station
The research team is examining differences in nutrient, water, and carbon storage and output for selected mixtures of annual and perennial plant communities, and providing educational opportunities about the results. They theorize that producers can reduce nutrient loads, improve water management, and maintain or improve agricultural productivity by strategic integration of perennial plants in agricultural landscapes.

Marketing and Food Systems Initiative

The Marketing and Food Systems Initiative funded 18 pre-proposals received from the Summer 2008 RFP. Another 7 projects were renewed for a second year of funding.

Marketing Initiative existing grants – Renewals for second year of funding

Total amount awarded // // // // // // // // \$96,141
Total number of projects // // // // // // // // 7

New Marketing Initiative grants – FY2009

Total amount awarded // // // // // // // // \$309,604
Total number of projects // // // // // // // // 18

//NEW Accelerating Latino leadership in educational initiatives for entrepreneurial and ecological farming: Building a culturally-responsive community of practice, 2 years

K. Richardson Bruna, ISU multicultural and international curriculum studies

Ultimately, this project will provide Latino immigrant adults and children with the educational resources they need to prepare them for entrepreneurial farming ventures. Investigators will bring members of a sister community in Mexico to Iowa to help in recruiting Latino participants for this project and assist in leadership development. The investigator is working with the Latino Farmers and Local Multicultural Food and Marketing Systems project in Marshalltown. (Start of this project was delayed due to the outbreak of the H1N1 virus in the Marshalltown area and in Mexico.)

//NEW The actual cost of food systems on roadway infrastructure, 1 year

O. Smadi, ISU Institute for Transportation (formerly Center for Transportation Research and Education)

Using Iowa Department of Transportation data on the highway system, this project will develop a systematic approach for evaluating the actual cost of moving food from farms to markets. Investigators will look at the following areas: environment (carbon emissions and air quality), infrastructure, energy (fuel), congestion, safety and user costs.

Adding a new generation to Iowa's sustainable farms, 2 years

T. Opheim and C. Johnson, Practical Farmers of Iowa, Ames

This program is helping at least 15 farm families or make farmer/apprentice matches that transition to the next generation by creating a learning community and holding special field days and breakout sessions at annual conferences and meetings. Case studies will be developed with at least six families or farmer/apprentice matches.

//NEW An automated mechanical intra-row weed removal system for vegetable crops, 2 years

L. Tang, ISU agricultural and biosystems engineering

The goal of this project is to develop a practical mechanical intra-row weed control solution for automatically removing weeds from vegetable crops for small and mid-scale Iowa growers. Investigators will explore an optical sensing system and a mechanism to remove weeds with minimal soil disturbance, crop damage and energy input. The project also will demonstrate the effectiveness and economic viability of the system.

Building a direct-to-consumer food distribution system in Iowa, 2 years

G. Huber, Practical Farmers of Iowa, Ames

This planning effort laid the groundwork for a self-supporting, direct-to-consumer distribution system in Iowa. The Iowa Food Cooperative has formed as an alternative distribution system that incorporates farmer and consumer ownership and control. Overall goals of the project are to increase marketing and sales of at least 20 farmers by at least \$100,000, and involve at least 150 consumers. Read more at www.iowafood.org/



//NEW Building student awareness and involvement in the Farm to ISU Program, 1 year
N. Levandowski, ISU Dining Services
This project will attempt to increase ISU students' awareness of the Farm to ISU Program and understanding of food systems. To do this, a grad student will create an educational campaign and ways for students to get involved and then will conduct a longitudinal survey of ISU students to evaluate changes in their perceptions.

//NEW Cultivating the agrarian dream: Aspiring agri-entrepreneurs helping one another choose their path, 2 years
P. Brown and A. Larson, ISU Agriculture and Natural Resources Extension
This is an outreach education effort led by ISU Extension's Small Farm Sustainability program. The investigator will develop, offer and evaluate workshops for farmer entrepreneurs, and create a forum for participants to interact with veteran entrepreneurs. The program will allow participants to look at where they currently are and where they'd like to be in relation to their dream farm business. Cultivating the Agrarian Dream will direct the most dedicated participants into more comprehensive training.

//NEW Developing and implementing a strategic plan for farm-to-school programs in northeast Iowa, 2 years
B. Ranum, ISU Extension, Winneshiek County
School districts and colleges, distributors, farmers and other local partners will work together to help increase access to and the consumption of fresh, local healthy foods for kindergarten through 12th grade and college students and faculty. Fourteen of the 18 school districts and three colleges in northeast Iowa sent representatives to monthly committee meetings between October 2008 and May 2009. The schools will follow one common work plan, with the ability to customize based on their individual needs.

//NEW Developing production, processing and marketing of aronia berries on small family farms in southeast Iowa, 2 years
N. Smith, ISU Extension, Jefferson County
This project will generate a much-needed study of aronia berries as a new commercial crop in southeast Iowa. It will facilitate the initial development of the industry by focusing on sustainable crop production and market development. Investigators plan to establish aronia plantings that will help diversify small family farm operations in the region.

Development of resources for organic food processors in the state of Iowa, 1 year, extended
S. Beattie, ISU food science and human nutrition
While there are many resources available for sustainable and organic agricultural producers, resources are lacking for those who wish to process these materials according to certified organic and other processing-specific regulations. This project includes a web-based resource for food processors who are interested in processing organically grown foods into finished products and also will fund a workshop for organic food processors in Iowa and surrounding states. More information is available at www.organicfoodprocessing.org.

//NEW Enhancing value and marketing options for pawpaw (*Asimina triloba*) by developing pulp separation and preservation techniques, 2 years
P. O'Malley, ISU Extension, Johnson County
Pawpaw fruits from an ongoing pawpaw cultivar trial orchard in Louisa County (funded by the Leopold Center earlier) will be used in this project to maximize opportunities for pawpaw production. Investigators will test ways to separate pulp from the skin and seed, and techniques to best preserve the fruit pulp.

Establishing an Iowa Microenterprise Foundation, 2 years
M. Edelman, ISU Community Vitality Center; and R. Prescott, Iowa Microloan Program, Ames
The Iowa Foundation for Microenterprise and Community Vitality (IFMCV) is a statewide nonprofit group that can provide small loans and coordinate technical assistance for rural entrepreneurs. The IFMCV has received a loan from and is the statewide intermediary for the Small Business Association's micro-loan program.

Expanding business skills for specialty growers in Iowa, 2 years
S. Shafer, Mid-Iowa Small Business Development Center; and P. Huber, Grow Your Small Market Farm Business Planning Program, Ames
This grant is building on the successful Grow Your Small Market Farm™ program offered by the Mid-Iowa Small Business Development Center. Investigators plan to further develop a grower network among the more than 100 small specialty farm businesses that have completed the program since 2001. Several participants in the program will receive scholarships based on the sustainable production practices they use.

//NEW Experiential educational engagement with working groups and communities of practice, 1 year
B. Wells, ISU sociology
This project unites interdisciplinary groups of ISU students who worked with local leaders in the RFSWG. This effort was part of an ISU course offered during the Spring 2009 semester, followed by a project evaluation.

//NEW Feasibility study for the creation of a meat processing training program in Iowa through the community colleges, 1 year
G. Sandholm, Webster City Area Development
The project objective is to measure current interest, commitment and demand for formally trained meat cutters in Iowa. Investigators will involve the entire range of meat processors in Iowa – all 15 community colleges, ISU meat science training programs and other available training resources.

//NEW A food distribution network for the Northern Iowa Food and Farm Partnership, 1 year
A. Geary, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls
In this project, the Northern Iowa Food and Farm Partnership will help growers build a pilot distribution network, working with a group of 12 producers who have been meeting over the past six months. The project will include an analysis of the group's business development options, and development of distribution logistics and a business/marketing plan. Investigators will work with the food enterprise consultant Red Tomato.

Food product demand mapping, 1 year
S. Nambisan and R. Boeckstedt, ISU Institute for Transportation (formerly Center for Transportation Research and Education)
Investigators developed a tool that can approximate markets for more than 200 different food products in every U.S. county and state.

//NEW Growing Up Local: A Value Chain Analysis of Local Produce in Iowa, 2 years
B. Mennecke, ISU logistics operations and management information systems
In an effort to provide a value chain analysis of locally grown produce in Iowa, the researchers will conduct focus groups and interviews to identify the values for stakeholders in the local produce chain, survey Iowa consumers using the conjoint survey technique to help quantify the values, and conduct site visits with stakeholders in successful and unsuccessful locally sourced markets.

//NEW High-tunnel resource manual and producer resource kit providing the tools for profitability, 2 years

R. Hansen, Iowa State University Value Added Agriculture Extension

Investigators will create educational materials and host workshops for fruit, vegetable and cut flower growers designed to help them produce crops successfully and profitably in high tunnels. The goal of this work is to boost the number of full- and part-time specialty growers in Iowa, and increase the supply of local fruits and vegetables.

Iowa Grasslands Products Calculator, 1 year

S. Nambisan and R. Boeckenedt, ISU Institute for Transportation (formerly Center for Transportation Research and Education) Investigators developed a prototype mapping tool that compares county-level demand and supply for the production of fuel from perennial tall grass crops in Iowa. Resulting databases will show the potential capacity for grassland production in each county, potential demand based on fuel currently sold in each county and conversion rates for grass crops of primary interest to the Leopold Center. These databases will be linked to show potential markets for grassland production related to renewable fuels.

Is the meat goat enterprise profitable and sustainable? 2 years

D. DeWitt and T. Olsen, ISU Extension, Storm Lake; and D. Morrical, ISU Extension, animal science Investigators developed a program to help meat goat producers track, analyze and evaluate expenses, income and profitability for their enterprises. The information will enable researchers and producers to identify losses in profitability and establish long-term sustainability within the industry. Findings appear at www.leopold.iastate.edu/research/marketing_files/workshop08/present/goat.pdf

Latino farmers and local multicultural food and marketing systems, 2 years

J. Flora, ISU rural sociology

The project will develop an immigrant farmer training and business incubation program alongside a multicultural local/regional food system. It will focus on the entrepreneurial spirit and diverse foods sought by new immigrants as a way to create entry points for Latino farmers in local food systems. Investigators will work in two Iowa communities and prepare a guide that documents crucial aspects of the process so that it could be used in other communities.

//NEW Life cycle assessment of confinement and pasture-based dairying in Iowa: Impacts and options for mitigation, 1 year

M. Duffy, ISU economics

Investigators will analyze the environmental impacts of three different dairy production systems in Iowa, and suggest options for reducing those impacts. An economic analysis of global warming emissions mitigation strategies also will be included.

Measuring the economic impacts of local food initiatives at the regional level, 1 year

D. Swenson, ISU economics

Three regional groups (Southeast Iowa Food Network in Jefferson, Van Buren and Davis counties; an eight-county group surrounding Waterloo and Cedar Falls; and the Cultivators in southwest Iowa) will receive help to gauge potential economic impact of increased production and consumption of local food products. They also will determine the value of various production and distribution scenarios and potential economic impact in the region.

New champions expanded scope: Developing an action plan for building an expanded regional food economy in Black Hawk and surrounding counties, 3 years

K. Enshayan, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls

This grant has built capacity for a stronger regional food economy in the eight-county region around Black Hawk County. The Northern Iowa Food and Farming Partnership formed in winter 2007-8 included members who are farmers, retailers, bankers and educators.

New farmer jump-start project, 1 year, extended

K. Booth, Wallace Foundation for Rural Research and Development, Lewis; and S. Olsen, ISU Extension, Cass County

This pilot project will recruit and provide financial and technical assistance to one new food producer in Cass County. That producer will receive access to land, water and production equipment, and expertise that will enable him or her to grow one or two more profitable vegetable crops, which will be marketed to local retailers. In addition, selected low-income residents will receive coupons for meals and discounts on local foods at the farmer's market or grocery store. The project was delayed this year because of difficult weather conditions.

Pottawattamie County Farm to Fork, 2 years

S. Frederiksen and M. Houser, Golden Hills RC&D, Oakland

A mentor program and strategic plan are being developed to increase the production of locally raised food in southwest Iowa. Organizers hope to increase the number of beginning producers in the region, increase the number and diversification of local growers as well as farmer-led businesses, and build stronger relationships between consumers and producers in the region.

//NEW Pottawattamie County Farm to Fork (Phase III), 2 years

S. Frederiksen and M. Houser, Golden Hills RC&D, Oakland

The goal of this project is to build the production capacity of the local foods economy in Pottawattamie County. The staff will complete several tasks, including a survey of existing growers to determine their needs, of independent food service operators to gauge willingness to buy local, and development of a mentoring program for new growers. They will also facilitate connections between growers and food service operators.

Producer machinery and labor sharing arrangements workshops, 2 years

R. Ginder, ISU-Iowa Alliance for Cooperative Business Development and ISU economics, Ames

Three workshops were conducted in 2007 to explain the pros and cons of producer machinery and labor sharing arrangements to producers and agribusinesses. Building on these experiences, the investigators will prepare two new case studies on intergenerational transfer to supplement the case studies already done on producer resource sharing. Information from these case studies will help them develop additional workshops on machinery and labor sharing arrangements.

//NEW Research and assistance in support of the foodsheds in the upper Midwest initiative to measure the economic impacts of increased local food production and consumption, 1 year

D. Swenson, ISU economics

In this study, the principal investigator will analyze various foodsheds in a six-state region of the upper Midwest with a population of about 20 million people. The goal is to provide information for food system leaders about the economic impacts of sustainable and local foodsheds. Project is also funded by organizations in five midwest states.

//NEW Routing foods into southeast Iowa, 1 year
E. Humble and D. Dettmann, Pathfinders
RC&D, Fairfield

The Routing Foods into Southeast Iowa initiative will determine the ease of creating a farmer-led cooperative brokerage in an area including, but not limited to, Davis, Jefferson, Keokuk, Mahaska, Van Buren and Wapello counties. To do this, the team will research existing local food cooperatives, meet with food producers to assess their interest in a supplier network and production capacity, and meet with buyers to determine their willingness to purchase local food.

Strategies to stabilize locally grown produce for year-round sales: A feasibility study, 2 years
S. Beattie, L. Wilson and A. Mendonca, ISU food science and human nutrition

First year work showed that: freezing products is the preferred method of stabilization for year-round sales; pathogen reduction in the flow is effectively carried out by the blanching step of freezing operations; and surveys found that consumers are willing to pay for the frozen product. Later work has been focused on light processing of food to enhance food safety. Light processing techniques include cleaning and modified atmosphere packaging, light thermal treatment, and freezing.

Update of the Iowa Produce Market Calculator Web site, 1 year

S. Nambisan, ISU Institute for Transportation (formerly Center for Transportation Research and Education)

The project investigator will update the Iowa Produce Market Potential Calculator so it reflects the 2007 census update. The user interface of the calculator also will be redesigned to allow users to estimate demand within targeted distribution areas.

Policy Initiative

The Policy Research Initiative funded two of seven pre-proposals received from the Summer 2008 RFP.

Policy Initiative existing grants –

Renewals for second year of funding

Total amount awarded ////////////// \$20,000

Total number of projects ////////////// 1

New Policy Initiative grants – FY2009

Total amount awarded ////////////// \$59,022

Total number of projects ////////////// 2

//NEW Iowa farmers and credit, crop insurance and sustainable agriculture, 2 years
C. Peterson, Iowa Farmers Union, Ames

Through the results of the project surveys and focus groups, more people involved in agriculture will be educated regarding the interaction between sustainable agriculture and agricultural financial and risk management initiatives.

//NEW Shaping a functional and sustainable biofuels industry through bridging industrial needs with farmer production capabilities, 1 year
R. M. Cruse, ISU agronomy

If a cellulosic biofuel industry is to develop, it is imperative that it is both functional and sustainable. The goal of this project is to coordinate the needs of the developing cellulosic biofuel industry with the ability Iowa farmers to supply biomass for the industry's facilities.

State policy alternatives for biofuels industry support of sustainable production of biofuels feedstocks, 2 years

D. Sand, Iowa Natural Heritage Foundation, Des Moines

This project will research public policy options that reward linking the growing bioeconomy to environmental stewardship. It will explore and articulate some traditional funding options as well as some new, creative ideas. The ideas will evolve and improve during the project, as a variety of perspectives and information emerge during a series of interviews.

Dairy-Based Projects

A special call was issued in 2006 for cross-initiative projects that targeted the challenges and opportunities for grass-based and/or organic dairies in Iowa.

Developing organic/grass-based dairies in southwest and southern Iowa, 1 year

D. Houghtaling, GROW Iowa Foundation, Greenfield; and S. Adams, ISU Extension, Malvern

Some preliminary work was done to recruit dairy farmers to this part of Iowa, but response and activity were not at the level expected. The project was terminated and remaining funds were returned to the Leopold Center.

Sustainable economic development through organic and grazing dairy farm establishment and transition, 3 years, extended

L. Tranel, ISU Extension, Dubuque

This project aims to provide financial and production information about model grazing farms for other beginning and transitioning dairy producers who aspire to establish profitable dairy operations.

Financial analysis of model dairy operations was done in 2008 for 2007 data. There data are or will be presented in a format for producers to use to help benchmark their beginning or transitioning dairy operations. The results are still in process for the financial data. A presentation on "Building Your Own Low Cost Parlor" is available at <http://connect.extension.iastate.edu/parlor>. A "Low Cost Milking Parlor" publication can be viewed at www.extension.iastate.edu/NR/rdonlyres/B090C051-8602-4456-B3D6-1ED769C2D495/61848/pm2033transiowaparlor12Mg.pdf

Cross-Initiative Projects

//NEW Meeting on-farm energy needs through conservation, efficiency and renewable energy, 2 years

K. Enshayan, Center for Energy and Environmental Education, UNI, Cedar Falls

A "Farm Energy Working Group" has been formed to support the implementation of a variety of energy conservation, efficiency and renewable energy practices to meet on-farm energy needs of Iowa's small and midsize farms. Group members will include representatives from organizations such as Practical Farmers of Iowa, Iowa Farm Bureau Federation and the Iowa Energy Center, as well as farmers with an interest or expertise in using renewable resources for on-farm energy uses.

//NEW On-line learning: Using webinars to teach about succession and enterprise development issues, 1 year

T. Opheim, Practical Farmers of Iowa, Ames

Plans are to offer four webinars on succession planning and four webinars on enterprise development for beginning farmers, with PFI and ISU's Beginning Farmer Center taking the lead in presenting the sessions that fit with their organizational expertise.





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